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Draft Environmental Impact Statement

Wyoming Interstate Company, Ltd. Docket No. CP05-54-000

FERC/EIS-0181D

PICEANCE BASIN EXPANSION PROJECT

Federal Energy Regulatory Commission
Washington, DC

Cooperating Agency:
Bureau of Land Management

May 2005

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FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426

OFFICE OF ENERGY PROJECTS

In Reply Refer To:
OEP/DG2E/Gas Group 1
Wyoming Interstate Company, Ltd.
Docket No. CP05-54-000
BLM Reference No. WYW-160264

TO THE PARTY ADDRESSED:

The environmental staff of the Federal Energy Regulatory Commission (FERC or Commission) has prepared this draft Environmental Impact Statement (EIS) on the interstate natural gas pipeline transmission facilities proposed by Wyoming Interstate Company, Ltd. (WIC) in the above-referenced docket.

This draft EIS was prepared to satisfy the requirements of the National Environmental Policy Act (NEPA). Its purpose is to inform the Commission, the public, and other permitting agencies about the potential adverse and beneficial environmental impacts associated with the proposed Piceance Basin Expansion Project (Piceance Project) and its alternatives, and to recommend practical, reasonable, and appropriate mitigation measures which would avoid or reduce any significant adverse impacts to the maximum extent practicable and, where feasible, to less than significant levels. The draft EIS concludes that the proposed project, with appropriate mitigating measures as recommended, would have limited adverse environmental impact.

The draft EIS also evaluates alternatives to the proposal, including system alternatives and pipeline route alternatives. We identified three route segments (the Uinta Basin Lateral Route Alternatives A and B, and the Danforth Hills North Study Area Collocation Alternative) that may offer environmental impact reductions relative to the equivalent segments of the proposed route. The Commission is requesting that WIC provide an updated rationale for selecting its proposed route over options for following the Uinta Basin Lateral Route Alternatives A or B, and is requesting that WIC provide additional information on the feasibility of the Danforth Hills North Study Area Collocation Alternative before making a routing recommendation in the final EIS.

The U.S. Department of Interior, Bureau of Land Management (BLM) is participating as a cooperating agency in the preparation of this draft EIS because the project would cross federal lands under BLM administration in Wyoming and Colorado. The draft EIS will be used by the BLM to consider the issuance of a right-of-way (ROW) grant for the portion of the project on federal lands. While the conclusions and recommendations presented in this draft EIS were developed with input from the BLM as a cooperating agency, the BLM will present its own conclusions and recommendations in its Record of Decision for the project.

Proposed Project

The Piceance Project involves the construction and operation of a new interstate natural gas pipeline system that would extend between the existing Colorado Interstate Gas Company (CIG) Greasewood Compressor Station in Rio Blanco County, Colorado, and the existing CIG

Wamsutter Compressor Station in Sweetwater County, Wyoming.[1] The draft EIS assesses the potential environmental effects of the construction and operation of the following facilities in Colorado and Wyoming:

- about 141.7 miles of 24-inch-diameter new pipeline with 89.8 miles located in Colorado (Rio Blanco and Moffat Counties) and 51.9 miles located in Wyoming (Sweetwater County);
- additional compression to be installed at the existing CIG Greasewood Compressor Station in Colorado;
- four meter stations at interconnections with other pipeline systems (two associated with the CIG Greasewood Compressor Station, two at the CIG Wamsutter Compressor Station);
- three pigging facilities (one associated with each compressor station and a new facility at milepost 54.0 near County Road 4 in Moffat County, Colorado);
- nine mainline valves (one valve at each of the two existing compressor stations and seven valves along the pipeline ROW); and
- other associated facilities, such as access roads and communication towers.

The proposed project would be capable of transporting up to 350,000 dekatherms of natural gas per day (Dthd) from the CIG Greasewood Compressor Station to interconnections at Wamsutter, Wyoming with the CIG and WIC interstate transmission pipeline systems that serve markets east and west of Wamsutter.

Comment Procedures and Public Meetings

Any person wishing to comment on the draft EIS may do so. To ensure consideration of your comments on the proposal in the final EIS, it is important that we receive your comments before the date specified below. **Please follow these instructions carefully to ensure that your comments are received in time and are properly recorded:**

- Send **an original and two copies** of your comments to:

  Magalie R. Salas, Secretary
  Federal Energy Regulatory Commission
  888 First Street, NE, Room 1A
  Washington, D.C. 20426;

- Reference **Docket No. CP05-54-000**;

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[1] Both WIC and CIG are affiliates owned by El Paso Corporation.

- Label one copy of your comments for the attention of **Gas Branch 1, PJ11.1**; and
- **Mail your comments so that they will be received in Washington, D.C. on or before June 20, 2005.**

The Commission strongly encourages electronic filing of any comments or interventions or protests to this proceeding. See 18 Code of Federal Regulations (CFR) 385.2001(a)(1)(iii) and the instructions on the Commission's website at http://www.ferc.gov under the "e-Filing" link and the link to the User's Guide. Prepare your submission in the same manner as you would if filing on paper and save it to a file on your hard drive. Before you can file comments, you will need to create a free account, which can be created by clicking on "Login to File" and then "New User Account."

In addition to or in lieu of sending written comments, the Commission invites you to attend a public comment meeting in the project area. Meetings are scheduled as shown below.

Schedule for Public Comment Meetings

DATE AND TIME	LOCATION
Tuesday, June 7, 2005 at 7:00 p.m.	Moffat County Extension Office – CSU 539 Barclay Street, **Craig**, CO 81625
Wednesday, June 8, 2005 at 7:00 p.m.	Desert School 235 Bugas, **Wamsutter**, WY 82336
Thursday, June 9, 2005 at 7:00 p.m.	Fairfield Center 200 Main Street, **Meeker**, CO 81641

Interested groups and individuals are encouraged to attend and present oral comments on the draft EIS. Transcripts of the meetings will be prepared.

After these comments are reviewed and considered, modifications will be made to the draft EIS and it will be published and distributed as a final EIS. The final EIS will contain responses to timely comments filed on the draft EIS.

Comments will be considered by the Commission but will not serve to make the commentor a party to the proceeding. Any person seeking to become a party to the proceeding must file a motion to intervene pursuant to Rule 214 of the Commission's Rules of Practice and Procedure (18 CFR 385.214). Only intervenors have the right to seek rehearing of the Commission's decision.

Anyone may intervene in this proceeding based on the draft EIS. You must file your request to intervene as specified above.[2] **You do not need intervenor status to have your comments considered.**

The draft EIS has been placed in the public files of the FERC and is available for public inspection at:

Federal Energy Regulatory Commission
Public Reference Room
888 First Street, NE, Room 2A
Washington, D.C. 20426
(202) 502-8371

Copies also are available for reading at the following locations:

BLM Field Office	Address	City/State	Zip Code
White River Field Office	73544 Hwy 64	Meeker, CO	81641
Little Snake Field Office	455 Emerson Street	Craig, CO	81625
Rawlins Field Office	1300 N. Third	Rawlins, WY	82301
Wyoming State Office	P.O. Box 1828	Cheyenne, WY	82003
Colorado State Office	RS 150A, Bldg. 50 DFC	Denver, CO	80225-0047
Library	**Address**	**City/State**	**Zip Code**
Craig Library	570 Green Street	Craig, CO	81625
DeBeque Library	730 Minter Avenue	DeBeque, CO	81630
Glenwood Springs Branch Library	413 9th Street	Glenwood Springs, CO	81601-3607
Hay Library	Western Wyoming Community College, 2500 College Drive	Rock Springs, WY	82902
Meeker Library	200 Main Street	Meeker, CO	81641
Merrill Library	Utah State University	Logan, UT	84322-3000
Morgan Library	Colorado State University	Fort Collins, CO	80526
Parachute Branch Library	244 Grand Valley Way	Parachute, CO	81635
Rangely Library	109 East Main Street	Rangely, CO	81641
Rifle Branch Library	107 East 2nd	Rifle, CO	81650
Rock Springs Library	400 C Street	Rock Springs, WY	82901
Saratoga Branch Library	P.O. Box 27	Saratoga, WY	82331
Sweetwater County Library	300 N. 1st East Street	Green River, WY	82935
University of Wyoming	1000 East University Avenue	Laramie, WY	82071
Wamsutter Library	230 Tierney	Wamsutter, WY	82336
White Mountain Library	2935 Sweetwater Drive	Rock Springs, WY	82901

[2] Interventions also may be filed electronically via the Internet in lieu of paper. See the previous discussion on filing comments electronically.

A limited number of copies are available from the FERC's Public Reference Room identified above. In addition, copies of the draft EIS have been mailed to federal, state, and local agencies; public interest groups; individuals and affected landowners; libraries; newspapers; and parties to this proceeding.

Additional information about the proposed project is available from the Commission's Office of External Affairs, at **1-866-208-FERC** or on the FERC Internet website (www.ferc.gov) using the "eLibrary" link. Click on the eLibrary link, click on "General Search" and enter the docket number excluding the last three digits (CP05-54) in the Docket Number field. Be sure you have selected an appropriate date range. For assistance, please contact FERC Online Support at FERCOnlineSupport@ferc.gov or toll free at 1-866-208-3676, or for TTY, contact (202) 502-8659. The eLibrary link on the FERC internet website also provides access to the texts of formal documents issued by the Commission, such as orders, notices, and rulemakings.

In addition, the Commission now offers a free service called eSubscription which allows you to keep track of all formal issuances and submittals in specific dockets. This can reduce the amount of time you spend researching proceedings by automatically providing you with notification of these filings, document summaries and direct links to the documents. Go to the eSubscription link on the FERC internet website.

Information concerning the involvement of the BLM is available from Tom Hurshman, BLM Project Manager, at (970) 240-5345.

Magalie R. Salas,
Secretary

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ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
ACEC	Areas of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
APE	area of potential effects
AQCC	Air Quality Control Commission
AQRV	air quality related values
BA	Biological Assessment
BLM	Bureau of Land Management
BMP	best management practices
CAA	Clean Air Act
CALPUFF	air quality dispersion model
CDOW	Colorado Division of Wildlife
CDPHE	Colorado Department of Public Health and Environment
CEQ	Council on Environmental Quality
Certificate	Certificate of Public Convenience and Necessity
CFR	Code of Federal Regulations
CIG	Colorado Interstate Gas Company
CO	carbon monoxide
CO_2	carbon dioxide
COE	U.S. Corps of Engineers
Commission	Federal Energy Regulatory Commission
CR	County Road
CSLB	Colorado State Land Board
CWA	Clean Water Act of 1972
dBA	decibels on the A-weighted scale
dbh	diameter at breast height
DOT	U.S. Department of Transportation
Dthd	dekatherms per day
ECRM Program	Environmental Compliance Monitoring and Reporting Program
EFH	essential fish habitat
EI	environmental inspector
EIS	Environmental Impact Statement
El Paso	El Paso Corporation
EnCana	EnCana Oil and Gas USA
Entrega	Entrega Gas Pipeline Inc.
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ERP	Emergency Response Plan
ESA	Endangered Species Act of 1973, as amended
FERC	Federal Energy Regulatory Commission
FERC Plan	FERC's Upland Erosion Control, Revegetation, and Maintenance Plan (FERC 2003)
FERC Procedures	FERC's Wetland and Waterbody Construction and Mitigation Procedures (FERC 2003)

FO	Field Office
FR	Federal Register
FWS	U.S. Fish and Wildlife Service
gpm	gallons per minute
H_2S	hydrogen sulfide
HAP	hazardous air pollutant
HCA	high consequence areas
HDD	horizontal directional drill
HDD Plan	Horizontal Directional Drilling Inadvertent Release Control Plan
I-80	Interstate 80
ISO	International Organization for Standardization
km	kilometer
L_{dn}	day-night equivalent sound level
L_{eq}	equivalent sound level
MACT	Maximum Achievable Control Technology
MAOP	maximum allowable operating pressure
MBTA	Migratory Bird Treaty Act of 1918, as amended
Memorandum	Under a Memorandum of Understanding on Natural Gas Transportation Facilities
MLA	Mineral Leasing Act of 1920
MLV	mainline valve
MMBtu/hr	million British thermal units per hour
MMcfd	million cubic feet per day
MP	Milepost
msl	mean sea level
MUID	Mapping Unit Identification
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NGA	Natural Gas Act
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NOI	Notice of Intent
Northwest Pipeline	Williams' Northwest Pipeline Corporation
NO_X	nitrogen oxides
NPDES	National Pollution Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSA	noise-sensitive area
NSPS	New Source Performance Standards
NWI	National Wetland Inventory
OEP	Office of Energy Projects
OPS	Office of Pipeline Safety
OTI	open trench inspection
Picenance Project	WIC's proposed Piceance Basin Expansion Project
PM_{10}	particulate matter with an aerodynamic diameter of 10 microns or less

$PM_{2.5}$	particulate matter with an aerodynamic diameter of 2.5 microns or less
POD	BLM's Plan of Development
PSCo	Public Service Company of Colorado
PSD	Prevention of Significant Deterioration
psig	pounds per square inch gauge
RMP	Resource Management Plan
ROD	Record of Decision
ROW	right-of-way
RSPA	Research and Special Programs Administration
RV	recreational vehicle
SCADA	Supervisory Control and Data Acquisition
Secretary	Secretary of the Commission
SHPO	State Historic Preservation Office
SO_2	sulfur dioxide
SO_x	sulfur oxides
SPCC Plan	Spill Prevention, Control, and Countermeasure Plan
STATSGO	State Soil Geographic database
SWA	State Wildlife Area
SWPPP	Storm Water Pollution Prevention Plan
Tcfy	trillion cubic feet per year
tpy	tons per year
TransColorado	TransColorado Gas Transmission Company
TTMP	Traffic and Transportation Management Plan
U.S.	United States
USC	United States Code
USGS	U.S. Geological Survey
VOC	volatile organic compound
VRM	Visual Resource Management
WAQS&R	Wyoming Air Quality Standards and Regulations
WDEQ	Wyoming Department of Environmental Quality
WGFD	Wyoming Game and Fish Department
WIC	Wyoming Interstate Company, Ltd.
WIC's Plan	Upland Erosion Control, Revegetation, and Maintenance Plan (FERC's Plan with WIC's requested variances)
WIC's Procedures	Wetland and Waterbody Construction and Mitigation Procedures (FERC's Procedures with WIC's requested variances)
Williams	Williams Power Company, Inc.

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

The Piceance Basin Expansion Project (Piceance Project) draft Environmental Impact Statement (EIS) has been prepared by the staff of the Federal Energy Regulatory Commission (FERC or Commission) with the cooperation and assistance of the Bureau of Land Management (BLM) under FERC Docket No. CP05-54-000. The draft EIS was prepared to fulfill the requirements of the National Environmental Policy Act (NEPA); the Council on Environmental Quality regulations for implementing NEPA (Title 40 of the Code of Federal Regulations [CFR], Parts 1500 -1508); the FERC's implementing regulations (18 CFR 380); and the BLM's right-of-way (ROW) grant regulations (43 CFR 2800 and 2880).

Wyoming Interstate Company, Ltd. (WIC) proposes to construct, own, and operate a new natural gas transmission system in Colorado and Wyoming. The proposed Piceance Project would be capable of transporting 350,000 dekatherms per day (Dthd) (equivalent to 341 million cubic feet per day [MMcfd]) of natural gas from supply basins in the central Rocky Mountains to the Wamsutter Hub (Sweetwater County, Wyoming). From there, other interstate transporters would be able to ship the gas to markets in the western and central United States (U.S.).

In accordance with NEPA, this document's purpose is to inform the FERC decision-makers, the public, and other permitting agencies about the potential adverse and beneficial environmental impacts associated with the proposed project and its alternatives, and to recommend practical, reasonable, and appropriate mitigation measures that would reduce adverse impacts to the extent possible. Most of the environmental impacts would occur during the construction period. We[1] considered and/or evaluated a range of system and route alternatives.

Proposed Action

The proposed Piceance Project would primarily consist of construction and operation of 141.7 miles of 24-inch-diameter interstate natural gas pipeline. The pipeline would extend between the existing Colorado Interstate Gas Company (CIG) Wamsutter Compressor Station in Sweetwater County, Wyoming, and the existing CIG Greasewood Compressor Station in Rio Blanco County, Colorado. The flow of natural gas would be northward, from Greasewood to Wamsutter. In Wamsutter, interconnections with two existing interstate shippers would be constructed. In addition to the proposed pipeline, WIC's new transportation system would include installing a new compressor (1,650 horsepower) within the CIG Greasewood Compressor Station, and constructing four metering stations, nine mainline valves, and three pigging facilities.

Public Involvement

On July 14, 2004, the FERC issued a *Notice of Intent to Prepare an Environmental Impact Statement for the Piceance Basin Expansion Project, Request For Comments On Environmental Issues, and Notice of Public Scoping Meetings and Route Inspection* (NOI). The NOI briefly described the project components, invited

[1] "We," "us," and "our" refer to the environmental staff of the Commission's Office of Energy Projects. Unless specifically identified otherwise, the recommendations and conclusions presented in the draft EIS are those of the FERC staff.

written comments from the public on the proposal, and listed the date and location of two public scoping meetings to be held in communities along the route. The NOI was sent to about 1,180 entities on a mailing list that included the landowners crossed and/or adjacent to the proposed ROW; federal and state agencies; Native American tribes; non-governmental and environmental organizations; libraries; the media; and other potentially interested citizens.

We held public scoping meetings in Craig, Colorado (August 3, 2004) and Meeker, Colorado (August 4, 2004). An additional scoping meeting was held in Rawlins, Wyoming, on June 8, 2004, for a related project proposed by Entrega Gas Pipeline, Inc. (Entrega) (Entrega Project, FERC Docket No. CP04-413-000), which shares the same pipeline route in Wyoming as the Piceance Project. Comments received at the Rawlins scoping meeting were considered relevant to both the Entrega and Piceance Projects. During the same time period, we organized and conducted a separate "agency" scoping meeting with federal and state agency representatives, and local officials to solicit input and coordinate our review of the proposed project. This meeting was held in Rifle, Colorado, on August 5, 2004.

In addition to oral and written comments received during agency and public scoping meetings, the Commission received written comments during and after the close of the public scoping period (August 16, 2004). In total, 43 written correspondences[2] containing project comments were received. Each letter was evaluated and comments were divided into issue groups. When written comments were combined with oral meeting comments, 307 individual comments were received.[3]

Areas of Concern Raised by Commentors

Issues raised during scoping included project purpose and need; scope of the analysis; alternatives; construction procedures; land use issues; effects on soils, water, vegetation, wildlife, threatened and endangered species; cultural resources; air quality; weed management; socioeconomic effects; noise impacts; public safety; cumulative impacts; and compensation and easement agreements. These concerns and others have been addressed in this draft EIS.

Project Impacts

Construction of the proposed Piceance Project would disturb approximately 1,909 acres of land, including the pipeline construction ROW, additional temporary workspace areas, aboveground facility sites, pipe storage and contractor yards, and upgrades to existing roads to be used for construction access. Approximately 860 acres of the 1,909 acres used for construction would be required for operation of the project. The remaining 1,049 acres of land would be restored and allowed to revert to former use.

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2 Written correspondences included letters, Return Mailers (attached to our NOI), and electronic mail.

3 Due to the similarity of project location and timing between the Piceance Project and the Entrega Project, comments received during the Entrega Project scoping process were considered relevant and included as part of the NEPA scoping process for the Piceance Project. The total reflects the sum of all individual comments, even if the same comment was received from the same person multiple times and in different formats (oral or written).

Approximately 54 percent of the land affected by construction and operation of the Piceance Project would be public lands. Of the total land affected by construction, the BLM manages 46 percent; the State of Colorado manages 8 percent (consisting of Colorado Division of Wildlife [CDOW] and Colorado State Land Board properties). The remaining 46 percent of the lands crossed by the pipeline would be private lands.

If the Piceance Project were approved, WIC proposes to begin construction by October 2005, with construction completed and the pipeline in-service by February 2006. Since winter construction can be complicated by weather conditions and can result in environmental impacts that differ from construction during other seasons, we have recommended that WIC prepare a Winter Construction Plan to address construction and reclamation procedures, as well as specific mitigation measures.

Geology (Minerals, Geologic Hazards, Paleontology)

Project construction and operation would not alter existing topography because the construction ROW would be recontoured to match the adjacent terrain. The Piceance Project would not interfere with oil and gas drilling or any current active mining operations. Because the proposed pipeline would be located adjacent to existing pipelines where they cross oil and gas strata or shallow coal beds, construction of the Piceance Project would not further reduce access to underlying resources. Potential for earthquake damage from ground shaking and subsidence is low. Based on the operating experience of WIC's Uinta Basin Lateral and other existing pipelines, the proposed Piceance Project route would avoid or reduce the area of difficult construction (steep slopes, congested utility corridors, rock outcrops, steep ravines), soil instability, and known geological hazards (flooding and sinkholes hazards). The Piceance Project would cross about 115 miles of geologic formations that contain vertebrate fossils and noteworthy occurrences of invertebrate and plant fossils. WIC has conducted pre-construction surveys and would monitor pipeline construction to protect or recover important fossils.

Soils and Invasive Plant Species

The majority of the Piceance Project would cross arid to semi-arid native rangelands that are underlain by relatively shallow, droughty soils that are susceptible to wind and water erosion. Other constraints include rocky and saline/alkaline soils. The pipeline also would cross about 19 acres of hydric soils, an indicator of areas that may contain drain tiles for crop production. WIC has committed to replace or repair any drain tiles damaged by construction activities; maintain water flow to irrigation systems throughout construction; and restore or repair the damage to irrigation systems. WIC would preserve topsoil by limiting soil stripping to the area over the pipeline trench; implementing best available erosion control practices included in its project-specific *Upland Erosion Control, Revegetation, and Maintenance Plan* (WIC's Plan) and the BLM's Plan of Development (POD); and applying revegetation seed mixtures appropriate for the climate and land uses. We have supplemented WIC's proposed mitigation with additional recommendations to reduce wind erosion of stripped topsoil; address potential topsoil degradation; and the control and spread of weeds along the ROW, including pre-construction weed treatments, washing construction equipment, and continuing weed control along the ROW for the life of the project.

Water Resources

WIC would not use groundwater during construction or operation. To protect surface and groundwater resources, designated areas for refueling and hazardous material storage would be located at least 500 feet from waterbodies on federal lands and 100 feet on all other lands. The Piceance Project would cross 4 perennial and 178 intermittent waterbodies. A horizontal directional drill (HDD) crossing would be completed at three perennial rivers (Little Snake, White, and Yampa Rivers) to avoid adverse effects on aquatic life and fisheries. WIC would implement a dry crossing technique for the remaining perennial cold water stream (Dry Fork of Piceance Creek), in accordance with WIC's project-specific *Wetland and Waterbody Construction and Mitigation Procedures* (WIC's Procedures). The remaining streams are intermittent and would be crossed using open-cut crossing techniques. To ensure streambank stability, we have recommended that WIC prepare a plan to ensure stabilization of incised banks. In order to hydrostatically test the proposed pipeline, WIC would use 33 acre-feet (approximately 10.8 million gallons) of water from three different rivers; just over half of the water would be obtained from the Little Snake River and the rest would be obtained from the White and Yampa Rivers. Withdrawals from these rivers may affect designated surface water uses, including aquatic life and fisheries. Consequently, we have requested that WIC modify its draft Hydrostatic Test Plan to include information that identifies withdrawal and discharge locations and techniques that would be used to reduce impacts to native fish species. The pipeline would cross about 0.9 mile of emergent wet meadows and shrubland wetlands. To minimize wetland impacts, measures from WIC's Procedures would be implemented, which would provide an adequate level of environmental protection.

Vegetation

The Piceance Project would disturb approximately 78 acres of grassland, 1,545 acres of shrublands, 99 acres of agricultural land (including some wetlands), and 187 acres of woodland. WIC's Plan would be followed in order to stabilize and re-seed disturbed areas to restore wildlife habitat and livestock grazing use. WIC would implement site-specific measures to avoid or reduce the loss of larger trees in riparian woodland areas at stream and river crossings. We also have recommended additional mitigation to avoid removal of potential bald eagle roosting trees. Revegetation success along the ROW would be monitored for several years by the FERC and BLM staffs. Because of limited rainfall and high evaporation rates, native vegetation community recovery would be long-term, ranging from a minimum of 5 to 7 years in grasslands, up to 20 to 30 years in shrublands, and more than 50 years in woodland communities.

Fish and Wildlife

WIC would construct across four different waterbodies in Colorado that support fish species, consisting of one that supports warmwater species and three that support coldwater species. WIC would avoid bank and channel disturbance to the Little Snake, White, and Yampa Rivers by using the HDD crossing method. The remaining stream (Dry Fork of Piceance Creek) would be crossed using a dry crossing technique in accordance with WIC's Procedures. WIC would avoid construction of crossings during cold and warmwater fisheries spawning periods as designated by state agencies. Open-cut crossings would cause short-term (usually 3 days or less) suspended sediment increases in intermittent stream and river channels.

The Piceance Project would disturb wildlife habitat, displace individual animals, and contribute to habitat fragmentation by expanding existing pipeline corridors. The proposed route would cross approximately 33 miles of critical elk, mule deer, and pronghorn winter habitat in Colorado; and about 3 and 8 miles of mule deer and pronghorn crucial winter habitat in Wyoming, respectively. Construction activities would not be allowed by BLM and/or state agencies in critical big game winter habitat from November 15 in Wyoming and December 1 in Colorado to April 30. Based on WIC's proposed schedule, they would need to complete construction activities in the designated big game wintering areas before the seasonal closure period begins. In addition, the pipeline would cross two State Wildlife Areas in Colorado. No Wildlife Habitat Management Areas would be crossed in Wyoming. To minimize impacts to wildlife, horses, and livestock, we recommend that WIC install ditch plugs with ramps within the construction trench and cap uncovered pipe at the end of each workday. Disturbed winter habitat areas would be re-seeded with mixtures approved by state wildlife agencies and the BLM.

WIC's proposed construction schedule would not overlap the breeding season for most migratory birds. Should construction be extended into the raptor nesting season, we recommend that WIC conduct pre-construction raptor nest surveys and abide by appropriate buffer zones and seasonal construction restrictions to prevent or minimize impacts to nesting raptors.

Special Status Species

We are requesting that the U.S. Fish and Wildlife Service (FWS) consider the draft EIS as the Biological Assessment for the proposed project as part of the Endangered Species Act Section 7 consultation process. Our recommended protection measures and effects determinations are discussed below.

Two federally listed plant species (Dudley Bluffs bladderpod and Dudley Bluffs twinpod [also known as the Piceance twinpod]) could potentially occur within the pipeline construction ROW. WIC would conduct pre-construction surveys to determine the potential presence of these species prior to construction. If listed plant populations are found, we have recommended that WIC notify the FWS and FERC to determine the most appropriate methods for avoiding or minimizing the loss of individual plants. Based on negative results from 2004 field surveys, WIC-committed protection measures, and our recommended protection measures, we have determined that the Piceance Project may affect, but is not likely to adversely affect these two plant species.

The proposed facilities would require new construction across three perennial rivers (Little Snake, White, and Yampa Rivers). Based on recommendations from the FWS and CDOW, WIC has proposed to HDD the Little Snake, White, and Yampa Rivers. The federally listed Colorado pikeminnow may be present at the Yampa River crossing and its designated Critical Habitat occurs downstream of both the proposed White and Yampa River pipeline crossings. Based on WIC's HDD crossing plan, we have determined that the waterbody crossings associated with the Piceance Project may affect, but are not likely to adversely affect this fish species or adversely modify its Critical Habitat. In the event that WIC was unable to complete a successful HDD crossing, we have recommended that WIC not be authorized to use a non-HDD crossing method until it has submitted an alternative, non-HDD crossing plan that identifies specific measures to minimize impacts to federally listed fishes and their habitat.

Populations of three other federally listed fish species (bonytail chub, humpback chub, and razorback sucker) were determined to be greater than 30 miles downstream in both the Yampa and White Rivers. Therefore, it is unlikely they would be affected by river crossing activities. We have concluded that the crossing of these waterbodies may affect, but is not likely to adversely affect these species or adversely modify their Critical Habitat.

WIC proposes to withdraw hydrostatic test water from the Little Snake, White, and Yampa Rivers; these withdrawals would be subject to seasonal restrictions. We have recommended that WIC provide its rationale for discharging to upland areas, rather than back into the surface waterbody where the water was initially withdrawn. We have determined that hydrostatic testing may affect, but is not likely to adversely affect federally listed fish species.

One federally listed bird (bald eagle) and one mammal (black-footed ferret) potentially occur in the project area. Based on known occurrence patterns, WIC-committed mitigation measures, and our recommended habitat and population protection measures, we have determined that the Piceance Project may affect, but is not likely to adversely affect the bald eagle and black-footed ferret.

The Piceance Project would cross within 2 miles of 23 historic leks (strutting grounds) for sage grouse (a BLM sensitive species). To prevent disruption of breeding activities, pre-construction surveys would be completed in 2005 to determine the presence of active lek sites. WIC's proposed construction schedule would avoid seasonal timing constraint periods for those construction areas located within 2 miles of an active lek site. In addition, WIC would minimize habitat impacts to lek sites by reducing the width of the ROW within 0.25 mile of a lek to the extent practical, and would not construct aboveground facilities within 0.25 mile of a lek. Appropriate seed mixtures would be applied to recover sage grouse habitat.

The Piceance Project could potentially affect BLM sensitive species, including 5 plants, 5 mammals, 12 birds, 2 amphibians, 1 reptile, and 4 fish. Based on WIC-committed protection measures and our analysis, we have concluded that while there may be effects on individuals, construction and operation of the Piceance Project would not cause a trend toward federal listing or loss of species viability.

Land Use, Recreation, and Visual Resources

The primary land use crossed by the Piceance Project would be rangeland that is used for livestock grazing. The proposed construction work area (i.e., the construction ROW and temporary additional workspaces) would not be located within 50 feet of any occupied residences or commercial buildings. A total of 860 acres would be newly dedicated to pipeline utility uses for the project life. The Piceance Project would conform to existing BLM land use plans and would acquire required permits and approvals to construct across state lands.

The Piceance Project would not cross or affect any developed recreation areas. In Colorado, the project would cross two CDOW properties (State Wildlife Areas). No wildlife habitat management areas would be crossed in Wyoming. The proposed pipeline would cross three natural areas, all in Colorado. Pipeline construction would overlap with use of these areas during the fall and winter big game hunting seasons.

WIC would coordinate with the agency managers of these areas to minimize conflicts with recreational user access to these areas.

The Piceance Project would generally be located in remote rural areas of Wyoming and Colorado, and would be located in or immediately adjacent to existing utility corridors over the majority of its entire route, though about 25 miles of construction would not be collocated with any existing utility corridor. The Piceance Project would be consistent with BLM Class III and IV Visual Resource Management criteria. Most aboveground facilities would be located at pre-existing facilities or within the proposed permanent ROW along lightly traveled roads.

Cultural Resources

Cultural resource inventories have been conducted along the majority of the proposed route, with only two extra workspaces, two 10-acre staging areas, four reroutes, and 0.4 mile of access road remaining to be surveyed. Additional access roads requiring survey may be identified. The completed surveys have identified 123 cultural resource sites in Colorado and 60 sites in Wyoming within the surveyed area. Of these sites, 35 sites in Colorado and 16 sites in Wyoming have been recommended for eligibility, or are officially eligible for listing on the National Register of Historic Places (NRHP). Additional investigations are recommended at a number of cultural resource sites to determine their NRHP eligibility.

The process of fully complying with Section 106 of the National Historic Preservation Act has not yet been completed for the Piceance Project. Surveys and evaluative testing have not been completed and reroutes to avoid eligible sites have not been finalized. Once evaluations are complete and it has been determined which sites can or cannot be avoided, the FERC, in consultation with the BLM and the Colorado and Wyoming State Historic Preservation Offices (SHPOs), would make final determinations of NRHP eligibility and project effects. For historic properties that would be adversely affected, the FERC and the BLM, in consultation with the SHPOs, would review the adequacy of WIC's proposed Treatment Plan. Once the Treatment Plan is approved, WIC would implement the specified treatment measures before any notice to proceed with project construction is authorized in any given area. Implementation of treatment would occur only after approval of the proposed project by both the FERC and the BLM. The FERC would ensure that treatment is carried out.

Socioeconomics and Transportation

WIC proposes to employ a peak workforce of about 600 workers to construct the pipeline and associated facilities during the final quarter of 2005, potentially extending into 2006. We estimated that about 92 percent of the workforce would consist of non-local personnel. The project would be completed using two separate workforces (spreads). One spread would work northward from the existing CIG Greasewood Compressor Station in western Colorado to County Road 8 (milepost [MP] 75.6) and the second spread would work from this point northward to the existing CIG Wamsutter Compressor Station in Wyoming. The dispersed construction would reduce the number of workers requiring temporary housing in the vicinity of pipeline work areas. We anticipate that temporary housing would be very limited in Rio Blanco and Garfield Counties, Colorado, based on the quantity of temporary housing and ongoing energy development activities.

We anticipate increased short-term demand for public services, particularly for emergency medical response to respond to the large construction workforce. Alternatively, long-term demands for public services would not occur since the operational workforce would be small. Local communities would receive short-term benefits from worker goods and services expenditures, and long-term benefits from property taxes. The aggregate assessed valuation for pipeline and aboveground facilities was estimated to be $27.8 million, of which 17 percent of the value would be in Wyoming and 83 percent in Colorado. Total annual property tax on this aggregate valuation was estimated to be $0.58 million. These tax revenues would typically be used by local and state governments for infrastructure improvements such as roads, schools, and health facilities, and to meet other needs of the community.

WIC would acquire land for its pipeline through easement agreements with private landowners. Potential impacts on land values from construction of a new pipeline are highly site-specific. Permanent structures could not be built over the pipeline, but existing land uses, such as livestock grazing, could continue as before. Our analysis concludes that there would be no disproportionate economic or public safety effects on minority or low-income communities as a result of the Piceance Project construction and operation.

WIC would limit delays along and damage to state and federal highways by boring beneath them. Smaller roads would be trenched, which would cause short-term delays. Construction of the Piceance Project would utilize a variety of secondary roads. Use of these roads would be subject to weight restrictions. WIC's Traffic and Transportation Management Plan defines the road conditions, traffic management procedures, and the procedures for repairing BLM, county, and state roads.

Air Quality and Noise

Construction of the pipeline and aboveground facilities would generate short-term fugitive dust along roadways and along the construction corridor during clearing and grading activities. WIC has committed to control fugitive dust using water and/or, if allowed, magnesium chloride. WIC would install a natural gas-fired compressor at the existing CIG Greasewood Compressor Station in Colorado. In a related action (TransColorado's North Expansion Project), TransColorado Gas Transmission Company (TransColorado) has proposed to install additional compression at the existing TransColorado Greasewood Compressor Station.[4] WIC would acquire operating permits from Colorado air quality permitting agencies, which may impose permit conditions to ensure that the new compressor's operation would meet air quality standards.

The new compressor at the CIG Greasewood Compressor Station would be located at the Greasewood Hub, a general location where multiple pipelines interconnect. Although this location is rural, there are other existing compressor stations at the Greasewood Hub. The nearest noise-sensitive area to the CIG Greasewood Compressor Station would be over 1,700 feet away. With the addition of the new compressor, the operation of this station is expected to remain in compliance with the FERC 55 decibels on the A-weighted scale standard. To ensure compliance with the FERC noise standard, we have recommended that WIC conduct noise measurements when operations begin to verify compliance.

[4] TransColorado's North Expansion Project is being reviewed by the FERC under a separate filing (FERC Docket No. CP05-45-000).

Reliability and Safety

WIC would comply with U.S. Department of Transportation pipeline materials and construction standards for natural gas pipelines. Where located in a utility corridor with other pipelines, the WIC pipeline would be typically offset a minimum of 50 feet from adjacent pipelines, which greatly reduces the risk of pipeline damage from any repair activities on adjacent pipelines. After construction, WIC must initiate a pipeline integrity management plan. As part of its plan, WIC must identify High Consequence Areas (HCAs), which typically include residential areas or areas where people congregate. One potential HCA has been identified as the the parking lot at the LUVS Truck Stop near the CIG Wamsutter Compressor Station in Wyoming. Portions of the pipeline that are located within HCAs would require inspection every seven years.

Cumulative Impacts

We identified existing and foreseeable projects that overlap or could overlap with the Piceance Project in time and space throughout the length of the pipeline. The major existing projects are the one or more existing pipelines that the Piceance Project would parallel over nearly the entire length of the project. The major foreseeable projects are:

- EnCana Oil and Gas USA's (EnCana's) Meeker Pipeline and Gas Plant Project, located in Rio Blanco and Garfield Counties, Colorado;
- TransColorado's North Expansion Project, consisting of a new TransColorado Greasewood Compressor Station and a new 24-inch-diameter 2,200-foot-long lateral to the CIG Greasewood Compressor Station; and
- the Entrega Project, a 36- to 42-inch-diameter new natural gas pipeline that would be constructed in the same pipeline corridor as the Piceance Project over a distance of about 98 miles.

The following are the primary cumulative impacts identified:

1. Construction of the Piceance Project would expand the width of existing pipeline corridors, particularly where the Entrega Project and Piceance Project pipelines would be routed adjacent to one another. Both projects would temporarily impact irrigated pasture at the Yampa River crossing as well as dry pasture at the Little Snake River crossing. There would be a corresponding expansion of wildlife habitat discontinuities in shrubland and woodlands, which may inhibit or limit wildlife movements and increase predation rates on certain species such as sage grouse. We have recommended that WIC reduce wildlife habit disturbance by extending its overlap of the existing Uinta Basin Lateral ROW.
2. The pipeline construction workforces for the Piceance and Entrega Projects could overlap between the Yampa River and Wamsutter during the fall and winter construction seasons of 2005. Additionally, a smaller construction workforce associated with the TransColorado North Expansion Project also would be in the Greasewood Hub area in the fall and winter of 2005. Construction associated with the EnCana Meeker Pipeline and Gas Project is proposed for mid-2005 and beyond. These projects could cause

cumulative increases in short-term demand for temporary housing, short-term demand for public services, and local congestion on secondary roads that would be used by these projects.

Alternatives Considered

We have considered the No Action Alternative, which would deny the proposed project. While this alternative would eliminate the environmental impacts identified in this draft EIS, it also would deny U.S. markets access to the 350 Dthd (341 MMcfd) of natural gas which the Piceance Project would transport.

We evaluated possible system alternatives including the use of other existing pipeline systems or the use of the proposed Entrega Project. Existing interstate natural gas pipelines that traverse the Piceance Basin would need to be modified (looped and/or compression added) to transport the volume of natural gas that would be transported by WIC's Piceance Project. Expansion of other existing pipeline systems would likely cause surface disturbance comparable to that resulting from the construction of the Piceance Project.

We also considered the option of combining the Entrega Project and Piceance Project pipelines into a single pipeline. While requiring substantially less pipeline than the sum of the two proposed projects and resulting in less surface disturbance, this alternative would require a larger pipe with greater compression (with resultant long-term air quality and noise impacts for the life of the project). While attractive in concept, we concluded that the "one-pipe" alternative would present a number of challenges and that melding the various factors and requirements (receipt points and pressures, delivery points and pressures, scheduling terms and conditions, etc.) of each individual system into a common system would be extremely difficult. Thus, we eliminated the one-pipe system alternative from further consideration.

We evaluated the differences in environmental impacts if the Piceance Project route followed the existing Uinta Basin Lateral between the Greasewood Hub and MP 105.1. WIC's proposed route along this 36.6-mile-long segment would only parallel existing utility ROWs for about 11.1 miles. To make use of the existing Uinta Basin Lateral ROW along this segment, we considered two route alternatives that also would follow the proposed Entrega Project route. We did not identify major construction constraints for these alternative routes. The Uinta Basin Lateral route alternatives for this segment appear to reduce environmental impacts compared to the proposed route because of: 1) equal or less overall surface disturbance; 2) less disturbance of sage grouse winter range (a locally important issue); 3) less disturbance in CDOW state wildlife management areas; and 4) more miles parallel to existing pipelines. Based on our analysis, WIC has not adequately explained the constraints that would justify the proposed pipeline alignment between MP 105.1 and the Greasewood Hub (MP 141.7). Consequently, we are requesting that WIC provide an updated rationale for selecting its proposed route over the existing Uinta Basin Lateral alternative route before making a routing recommendation in the final EIS. We will make a recommendation on the preferred route along this segment following our analysis of the information we receive from WIC regarding its proposed route between MPs 105.1 and 141.7.

We also examined a collocation alternative north of MP 105.1 (within what we term the Danforth Hills North Study Area), where we evaluated the extent to which long-term disturbance of sage grouse habitat could be reduced by collocating the two projects in the same 150-foot-wide ROW. Along this segment, the proposed route and proposed Entrega Project route generally follow the Uinta Basin Lateral to Wamsutter. We

estimated that about 254 less acres of sage grouse habitat (a 33 percent reduction) would be disturbed if the two proposed projects were collocated across 29 miles of sage grouse breeding and brooding habitat north of the Yampa River. We have recommended that WIC provide additional information on the feasibility of this collocation alternative, and we will report on this feasibility analysis in the final EIS.

Conclusions

The conclusions and recommendations presented in this section are those of the FERC environmental staff. Our conclusions and recommendations were developed with input from the BLM as a cooperating agency; the BLM will use the final EIS in its Record of Decision for the Piceance Project.

Review of the information provided by WIC and further developed from responses to data requests; field investigations; scoping; literature research; alternatives analysis; and contacts with federal, state, and local agencies, and individual members of the public indicates that the proposed project would result in limited adverse environmental impact during construction and operation. We conclude that if the project is constructed and operated in accordance with applicable laws and regulations, WIC's proposed mitigation, and the additional mitigation recommendations presented below, the Piceance Project would be an environmentally acceptable action. Although many factors were considered in this determination, the principal reasons are:

- 82 percent of the proposed pipeline would be located adjacent to existing pipeline, utility, and road ROWs. Where WIC's proposed pipeline would parallel existing pipelines, it would generally be installed at a 50-foot offset from the nearest pipeline centerline;

- the project would be consistent with or in conformance with federal resource management plans;

- WIC would implement a number of resource- or activity-specific plans, procedures, and agreements to protect natural resources, avoid or limit environmental impact, and promote restoration of all disturbed areas during construction and operation of the project;

- the use of the HDD method would avoid disturbances to the beds and banks of the Little Snake, White, and Yampa Rivers;

- the appropriate consultations with the FWS, the SHPOs, the BLM, other affected land management agencies, and any appropriate pre-construction compliance actions resulting from these consultations, would be completed before WIC would be allowed to begin construction in any given area; and

- an environmental inspection program would be implemented to ensure compliance with all mitigation measures, Certificate conditions, and requirements contained in the POD.

In addition, we have developed specific mitigation measures to further reduce the environmental impacts that would otherwise result from construction of the project. The additional studies or field investigations, which we recommend, typically result in site-specific mitigation and further reduction of impacts; therefore, we are recommending that these mitigation measures be attached as conditions to any Certificate issued by the Commission.

INTRODUCTION

CHAPTER 1

1.0 INTRODUCTION

1.1 Background

On January 24, 2005, Wyoming Interstate Company, Ltd. (WIC), a subsidiary of El Paso Corporation, filed an application with the Federal Energy Regulatory Commission (FERC or Commission) in Docket No. CP05-54-000, to construct, own, and operate new natural gas transmission facilities in Colorado and Wyoming.[1] In its filing, WIC seeks a Certificate of Public Convenience and Necessity (Certificate) under Section 7(c) of the Natural Gas Act (NGA) and Part 157 of the Commission's regulations. The Commission's environmental staff has prepared this draft environmental impact statement (EIS) to assess the environmental impacts resulting from construction and operation of the facilities proposed by WIC in accordance with the requirements of the National Environmental Policy Act (NEPA).

WIC's proposal, referred to in this draft EIS as the Piceance Basin Expansion Project (Piceance Project), would involve construction and operation of about 141.7 miles of 24-inch-diameter natural gas pipeline, 1,650 horsepower of additional compression at an existing compressor station, four new metering stations, and related facilities. The pipeline would extend between the existing Colorado Interstate Gas Company (CIG) Wamsutter Compressor Station in Sweetwater County, Wyoming and the Greasewood Hub[2] in the Piceance Basin, terminating at the existing CIG Greasewood Compressor Station in Rio Blanco County, Colorado (**figure 1.1-1**).[3] The Piceance Project would be designed to receive and transport up to 350,000 dekatherms per day (Dthd); (equivalent to about 341 million cubic feet per day [MMcfd]) from the Greasewood Hub to the CIG Wamsutter Compressor Station, where it would interconnect with two interstate transportation pipelines. This project would meet the needs of Williams Power Company, Inc. (Williams), a major Piceance Basin gas producer, to transport natural gas from the Piceance Basin to markets in the east or westward from Wamsutter.

WIC proposes to begin construction in October of 2005, with construction being completed by the end of January 2006. Based on this proposed schedule, WIC proposes to place the pipeline into service by February 1, 2006.

1.2 Project Purpose and Need

The purpose of the Piceance Project is to transport natural gas from supply basins in the central Rocky Mountains to interstate shippers at Wamsutter who would carry the gas to markets in both the western and central United States (U.S.). The need for the project is dictated by an increasing natural gas supply (production) in the Rocky Mountain region without a concurrent increase in pipeline capacity to transport this gas to market. Gas production in the Rocky Mountain region (New Mexico, Colorado, Wyoming, Utah, and Montana) is predicted to increase from 3.3 trillion cubic feet per year (Tcfy) in 2002 to 4.6 Tcfy in 2010 and

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1 During the FERC Pre-filing Process this project was assigned Docket No. PF04-13-000. When WIC filed its application with the Commission, the pre-filing docket was closed and a new docket number (CP05-54-000) was assigned to the Piceance Project.

2 The Greasewood Hub is an existing convergence point for various interstate pipelines including CIG, TransColorado Gas Transmission Company, Questar Pipeline Company, as well as numerous pipeline gathering systems located in the Piceance Basin area.

3 Both WIC and CIG are affiliates owned by El Paso Corporation.

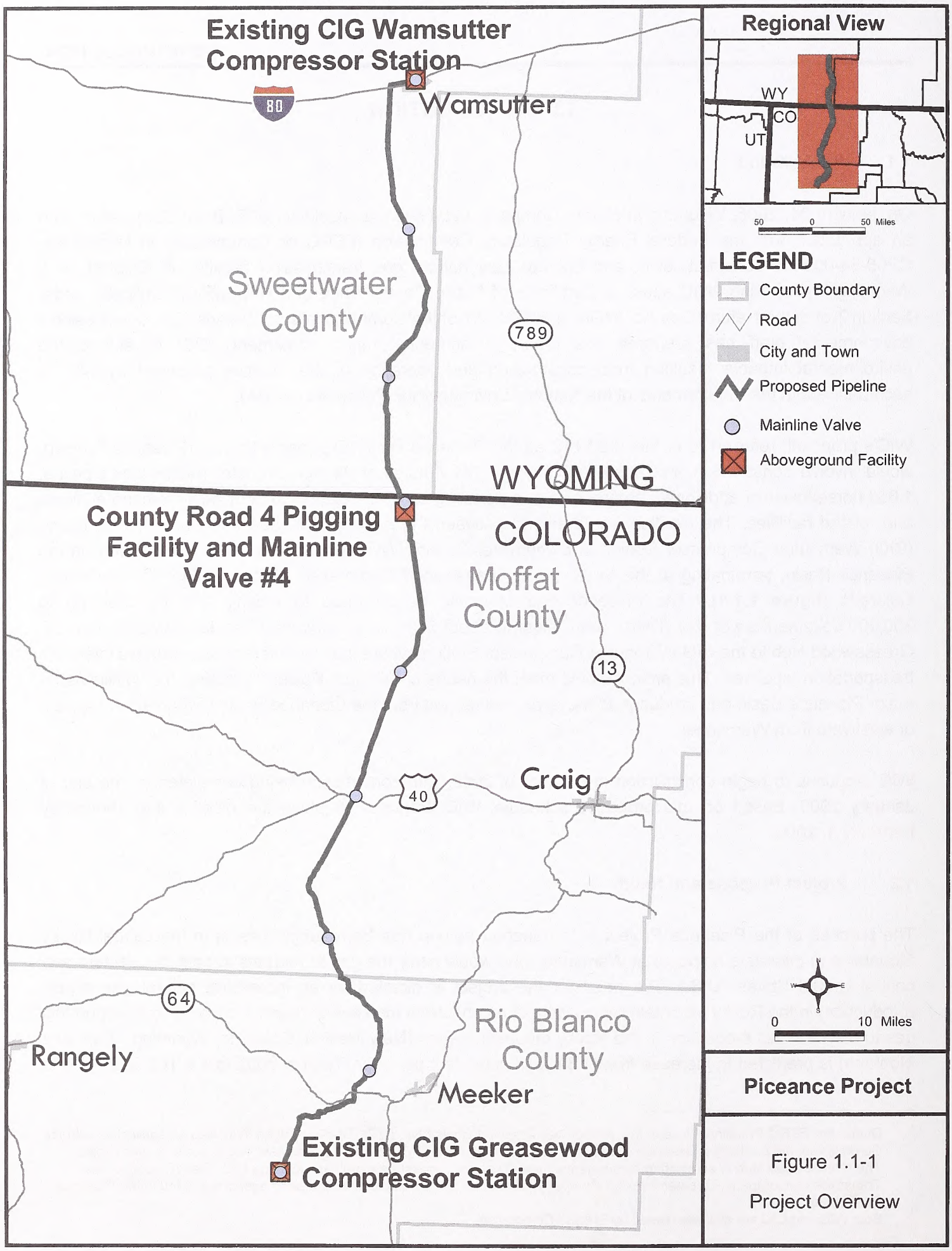

Figure 1.1-1

Project Overview

4/4/05

6.3 Tcfy in 2025 (U.S. Department of Energy 2004). This increase in production will offset declining production in other U.S. gas producing regions.

1.3 Purpose and Scope of this Document

The principal purposes for preparing an EIS are to:

- identify and assess potential impact on the natural and human environment that would result from the implementation of the proposed action;
- identify and recommend reasonable alternatives and specific mitigation measures, as necessary, to avoid or minimize environmental impacts; and
- facilitate public involvement in the environmental review process.

This draft EIS focuses on facilities that are under the FERC's jurisdiction, i.e., about 141.7 miles of natural gas pipeline, additional compression to be installed at an existing compressor station, and related ancillary facilities. The scope of the analysis of those facilities not under the jurisdiction of the FERC (e.g., facilities related to development, production, gathering, and processing of natural gas) is described in section 1.5.

The topics addressed in this draft EIS include geology (including hazards, mineral resources, and paleontological resources); soils; groundwater; surface waters (including water quality); wetlands; vegetation; wildlife and aquatic species; special status species; land use (including agricultural resources); transportation; recreation and special interest areas (including Areas of Critical Environmental Concern [ACEC], Wild and Scenic Rivers, and Wilderness Areas); visual resources; socioeconomics (including population, housing, and public services); environmental justice; cultural resources; Native American concerns; air quality and noise; reliability and safety; cumulative impacts; and alternatives. The draft EIS describes the affected environment as it currently exists, discusses the environmental consequences of the proposed project, and compares the project's potential impact to that of alternatives. The draft EIS also presents recommended mitigation measures and our[4] conclusions.

The FERC is the "lead federal agency" for preparation of this draft EIS. This effort was undertaken with the participation and assistance of the U.S. Department of the Interior's Bureau of Land Management (BLM), which acted as a "cooperating agency" under NEPA. The draft EIS will provide a basis for coordinated federal agency decision-making in a single document, avoiding duplication between federal processes. In addition to the lead and cooperating agencies, other federal, state, and local agencies will use the EIS in approving or issuing permits or approvals for all or part of the proposed project (see section 2.8).

[4] "We," "us," and "our" refer to the environmental staff of the Commission's Office of Energy Projects. Unless specifically identified otherwise, the recommendations and conclusions presented in this EIS are those of the FERC staff.

1.3.1 FERC

The FERC is the federal agency responsible for regulating the transportation of natural gas in interstate commerce. Under the NGA, the FERC determines whether interstate natural gas facilities are in the public interest and, if so, grants a Certificate for construction and operation. As part of this determination, the FERC will consider the findings of this draft EIS as well as non-environmental issues in its review of WIC's application. The FERC will authorize the construction and operation of the proposed facilities only if it finds that the evidence produced on technical competence, financing, rates, market demand, gas supply, existing facilities and service, environmental impacts, long-term feasibility, and other issues demonstrate that a project is, or will be, required by the public convenience and necessity.

Environmental impact assessment and mitigation development are important factors in the overall public interest determination. Under NEPA, the FERC has a responsibility to consider the potential environmental impacts associated with proposals that come before it. This draft EIS has been prepared to fulfill that responsibility for WIC's proposal in compliance with the requirements of NEPA, the Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA (Title 40 of the Code of Federal Regulations [CFR], Parts 1500-1508 [40 CFR 1500-1508]), and the FERC's regulations for implementing NEPA (18 CFR 380).

1.3.2 BLM

WIC's proposed pipeline route crosses federal lands managed by the BLM. Because the BLM must comply with the requirements of NEPA before issuing right-of-way (ROW) grants across lands under its management, the BLM has elected to cooperate with the FERC in preparing this draft EIS.

As a cooperating agency, the BLM proposes to adopt this draft EIS per 40 CFR 1506.3 to meet its responsibilities under NEPA in considering WIC's application for a ROW grant. WIC's application was submitted to the BLM's Rawlins, Wyoming, Field Office (FO) on June 25, 2004. Under section 185(f) of the Mineral Leasing Act of 1920 (MLA), the BLM has the authority to issue ROW grants for all affected federal lands. This action would be in accordance with 43 CFR 2800 and 2880, subsequent 2800 and 2880 Manuals, and Handbook 2801-1. For the Piceance Project, the BLM would consider the issuance of a new ROW grant and issuance of associated temporary use permits that would apply to BLM-managed lands crossed by the project. The BLM also would consider conformance with land use plans and impacts on resources and programs in determining whether to issue a ROW grant. The BLM's decision will be documented in a project Record of Decision (ROD) prepared by the BLM. BLM will consider any FERC approval or denial of WIC's proposal before issuing or denying a ROW grant for the proposed project.

The primary decisions to be addressed and made by the BLM include:

- Shall a ROW grant that includes mitigation and monitoring requirements be issued for a permanent pipeline ROW that will support pipeline construction and operation on federal lands?

- Shall Temporary Use Permits be granted for roads and temporary work areas needed for project construction on federal lands?

If the BLM decides to approve the Piceance Project, it will issue a ROW grant that would allow construction. ROW grants typically include standard agency stipulations, conditions imposed on the project as the result of the NEPA review, and a complete Plan of Development (POD).

1.4 Public Review and Comment

On June 29, 2004, the FERC approved WIC's request to use the FERC NEPA Pre-filing Process for the proposed Piceance Project and established Docket No. PF04-13-000 to place information filed by WIC and documents issued by the Commission into the public record.[5] The intent of the NEPA Pre-filing Process is to initiate environmental scoping and review activities early in the project planning process. Starting our environmental review before an application is formally filed with the Commission enables early involvement by the public, governmental agencies, and other interested parties while the project is still being designed. In this manner, we can identify environmental issues early in the process and facilitate resolution among the stakeholders.

As part of the NEPA Pre-filing Process, WIC mailed letters to landowners, government officials, and the general public informing them about the project and inviting them to attend the combined open houses/ scoping meetings. This forum provided stakeholders the opportunity to learn about the project and ask questions.

On July 14, 2004, the FERC issued a *Notice of Intent to Prepare an Environmental Impact Statement for the Piceance Basin Expansion Project, Request For Comments On Environmental Issues, and Notice of Public Scoping Meetings and Route Inspection* (NOI). This document briefly described the project components, invited written comments from the public on the proposal, and listed the date and location of two public scoping meetings to be held in communities along the route. The NOI was sent to about 1,180 entities on a mailing list that included the landowners crossed and/or adjacent to the proposed ROW, federal and state agencies, Native American tribes, non-governmental and environmental organizations, libraries, the media, and other potentially interested citizens. The public scoping comment period for the Piceance Project closed on August 16, 2004.

We invited other federal agencies with jurisdiction and special expertise to be cooperating agencies during the project review. The BLM requested and received cooperating agency status. As part of this effort, we requested the cooperation of the U.S. Fish and Wildlife Service (FWS) and the U.S. Army Corps of Engineers (COE) because of their responsibilities under the Endangered Species Act of 1973, as amended (ESA) and the Clean Water Act of 1972 (CWA), respectively.

We held public scoping meetings in Craig, Colorado (August 3, 2004) and Meeker, Colorado (August 4, 2004). An additional scoping meeting was held in Rawlins, Wyoming, on June 8, 2004, for a related project proposed by Entrega Gas Pipeline, Inc. (Entrega) (Entrega Project, FERC Docket No. CP04-413-000), which shares the same pipeline route in Wyoming as the Piceance Project. (the Entrega Project is described

[5] The request was made and the pre-filing docket was assigned in the name of El Paso Pipeline Group, Western Pipelines (WIC's affiliate). Both entities are subsidiaries of El Paso Corporation.

below in section 1.6). The Craig and Meeker meetings were announced in the NOI and in local area newspapers. Transcripts of the public scoping meetings are part of the public record and are available for viewing at the FERC website for the WIC docket.[6]

During the same time period, we organized and conducted a separate "agency" scoping meeting with federal, state, and local agency officials to solicit input and coordinate our review of the proposed project. This meeting was held in Rifle, Colorado on August 5, 2004. A summary of the issues discussed was made part of the public record and posted on the FERC website.

In addition to oral and written comments received during agency and public scoping meetings, the Commission received written comments during and after the close of the public scoping period (August 16, 2004). In total, 43 written correspondences[7] containing project comments were received from 30 parties, including items from federal and state government agencies; landowners; and environmental groups. Each letter was evaluated, and comments were divided into issue groups. When written comments were combined with oral meeting comments, 307 individual comments[8] were received. Many of these comments addressed the same environmental issues. Of the comments received, about one-third were non-environmental in nature (e.g., project need, easement acquisition, compensation, and general statements of support or opposition). **Table 1.4-1** lists the environmental issues and concerns identified by commentors during the scoping process.

1.5 Nonjurisdictional Facilities

Under Section 7 of the NGA, the FERC is required to consider, as part of its decision to authorize interstate natural gas facilities, all factors bearing on the public convenience and necessity. The facilities for the proposed Piceance Project that would be under the FERC's jurisdiction include approximately 141.7 miles of natural gas pipeline, additional compression at the existing CIG Greasewood Compressor Station, four interconnections with existing pipelines, nine mainline valves, and three pigging facilities.[9] These facilities are discussed in detail in section 2.1. Many of the proposed aboveground facilities would be located within existing compressor station facility sites.

Occasionally, proposed natural gas pipeline projects have associated facilities that do not come under FERC jurisdiction. These "nonjurisdictional" facilities may be integral to the need for the proposed project (e.g., a new or expanded power plant at the end of a FERC-jurisdictional pipeline) or they may be merely associated as a minor, non-integral component of the proposed jurisdictional facilities.

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6 Public meeting transcripts and a summary of the issues discussed during agency scoping meetings are available for viewing on the FERC Internet website (http://www.ferc.gov). Using the "eLibrary" link, select "General Search" from the eLibrary menu, enter the selected date range and "Docket No." (PF04-13-000), and follow the instructions. (For assistance, call 1-866-208-3676 or e-mail FercOnlineSupport@ferc.gov.) Because scoping was conducted during the pre-filing review, PF04-13-000 must be used in the "Docket No." field to view the public scoping transcripts.

7 Written correspondences included letters, return mailers (attached to our NOI), and electronic mail.

8 Due to the similarity of project location and timing between the Piceance Project and the Entrega Project, comments received during the Entrega Project scoping process from the areas where WIC proposes construction were considered relevant and included as part of the NEPA scoping process for the Piceance Project. The total reflects the sum of all individual comments, even if the same comment was received from the same person multiple times and in different formats (oral or written).

9 A pipeline "pig" is a device used to clean or inspect the pipeline. A pigging facility may include a pig launcher, receiver, or combined launcher/receiver. A pigging facility is an aboveground facility where pigs are inserted into and/or retrieved from the pipeline.

Table 1.4-1
Issues Identified and Comments Received During the Public Scoping Process for the Piceance Project

Purpose and Need
- Sources and suppliers of natural gas for the project.
- Existing regional pipeline transportation capacities.

NEPA Process
- Pipeline and ancillary facilities to be included in the EIS analysis.
- Consideration of a single combined EIS for the Piceance Project and the Entrega Project.
- Completion of the BLM Rawlins FO Resource Management Plan (RMP) prior to making ROW decisions for the Piceance Project.
- Jurisdiction for gathering pipelines that provide gas for the Piceance Project.

Geology
- Potential landslide risk on steep slopes.
- Potential pipe exposure at incised channel crossings.

Soils and Noxious Weeds
- Soil loss from wind and water erosion.
- Long-term loss of desirable vegetation caused by inappropriate species selection for revegetation; weed invasion; and difficult reclamation conditions (e.g., alkaline soils).
- Spread of noxious and invasive weeds in excavated soils.
- Loss of vegetation productivity from soil mixing and compaction.
- Restoration and monitoring of the ROW to original contour.

Water
- Increased sedimentation at river and stream crossings and irrigation ditches.
- Depletion of surface water sources used for dust control and hydrostatic testing.
- Potential reduction in water quality at hydrostatic test water discharge locations.
- Storage of hazardous materials at refueling sites.

Vegetation
- Long-term loss of native species and structural diversity in areas with high wildlife habitat values (sagebrush communities, mountain shrublands, riparian areas).

Fish and Wildlife
- Potential loss of wildlife individuals and reproductive success because of human activity, construction surface disturbance, and compressor station operational noise during critical periods of the year. Primary species of concern: big game and migratory birds (including raptors).
- Potential loss of fish individuals and reproductive success because of construction disturbance in waterways during critical periods of the year.
- Increased habitat fragmentation from expansion of surface disturbance caused by existing and new pipeline ROWs.
- Indirect effects (increased human activity and noise).

Special Status Species
- Potential loss of wildlife species individuals and reduced reproductive success because of human activity, construction surface disturbance, and compressor station operational noise during critical periods of the year. Primary species of concern: bald eagle and other special status raptors, sage grouse, prairie dog colonies and associated species, and other BLM special status species.
- Potential loss of fish individuals and reproductive success because of construction disturbance in waterways during critical periods of the year. Primary species of concern: native Colorado River system fish.

Table 1.4-1 (Continued)

Special Status Species (Continued)

- Depletion effects on surface water regimes and habitats for downstream listed species (Colorado River system).
- Potential loss of plant species individuals and reduced reproductive success because of construction surface disturbance. Primary species of concern: Dudley Bluffs twinpod, Dudley Bluffs bladderpod, BLM special status plants.
- Potential natural gas or condensate leaks and impacts on fish.

Land Use, Recreation, and Visual Resources

- Loss or delay of agricultural production and potential interference with livestock management, including fence and irrigation system repairs.
- Construction noise, human activity, and surface disturbance near residential areas and farms.
- Effects of heavy loads on county and private roads, and plans for repair.
- Visual impacts from new pipeline surface disturbance and aboveground ancillary facilities on nearby residential areas and Key Observation Points.
- Increased public access to public and private lands from new road construction.
- Potential conflicts between big game hunting and pipeline construction.
- Potential for precluded future land uses.
- Decommisioning plans for temporary access roads.
- Protection measures for unique or sensitive areas.

Cultural Resources

- Consultation with potentially affected Native American tribes.
- Identification and protection of cultural resources in and near construction areas.
- Identification and protection of traditional cultural properties in the area.
- Identification and protection of the Overland and Cherokee historic trails.

Socioeconomics

- ROW easement negotiations.
- Potential reductions in property value and changes in future use because of a new pipeline.
- Adequacy of temporary housing and camp sites during construction.
- Short- and long-term fiscal benefits and costs to local communities and counties.
- Carpooling or busing crews to work sites.
- Limited emergency medical and fire fighting capabilities in Rio Blanco County, Colorado.

Air and Noise

- Increased fugitive dust generation and need for control on access roads.
- Compressor station combustion emissions compliance with air quality standards.
- Compressor station noise impacts on nearby residences and potential mitigation.

Public Safety

- Proximity of adjacent pipelines.
- Construction practices around electrical transmission lines.
- Ensure pipe strength sufficient for heavy vehicles.
- Properly mark the location and ownership of underground utilities.
- Electrical grounding of the pipeline.

Cumulative Impacts

- Growth induced by increase in local pipeline capacity.
- Relationship to other oil and gas development activities.
- Inclusion of the proposed Entrega Project and its associated facilities.
- Disruption and loss of agricultural production from two pipelines (Piceance Project and Entrega Project) constructed sequentially.

Table 1.4-1 (Continued)

Cumulative Impacts (Continued)

- Cumulative impacts from multiple pipelines in nearby, but not abutting, ROWs.
- Cumulative pipeline impacts (surface disturbance, restoration, and precluded land use) on nearby landowners.
- Cumulative impacts on wildlife and their habitats.
- Conversion plans for the existing soda ash pipelines.

Alternatives

- Single pipeline for the Piceance Project and Entrega Project where the two projects overlap.
- Construction of Piceance and Entrega pipelines within a single, common ROW.
- Simultaneous construction and restoration of Piceance project and Entrega project.
- Construction of the Piceance Project pipeline in an alternative corridor between the CIG Greasewood Compressor Station (project end milepost [MP] 141.7) and approximate MP 106.

WIC would construct two new microwave communication towers in Colorado, and both towers would be located adjacent to existing communication towers. One tower would be located on top of Magnetic Mountain in Rio Blanco County (Township 3 North Range 94 West Section 27 [T3N R94W S27]) and the other would be on Juniper Mountain in Moffat County (T6N R95W S23). These non-jurisdictional facilities would allow remote monitoring of the pipeline and communication with valves, compressors, and personnel during operation. The Juniper Mountain tower would be located on BLM-administered lands near existing communication sites owned by CIG. The amount of BLM-administered lands available for a communications site atop Magnetic Mountain is limited. Consequently, WIC may need to obtain an easement from private landowners on Magnetic Mountain if a suitable location cannot be found on BLM lands. Each tower would be sited on an individual 50-foot by 50-foot (0.06 acre) graveled area. The Juniper Mountain tower would be constructed within pinyon-juniper habitat, while the Magnetic Mountain tower would impact shrub-scrub vegetation. Because the towers would be located adjacent to other existing communication towers, there would be negligible impacts to visual resources.

Natural gas for the Piceance Project pipeline would be derived from existing, previously permitted TransColorado Gas Transmission Company (TransColorado) and Williams pipelines. There are multiple sources of gas for these existing pipelines. On a regional scale, there are existing and planned nonjurisdictional facilities, such as natural gas development, production, gathering, and processing facilities that have been or will be constructed and operated by Williams or other producers in the basin, regardless of the status of the Piceance Project. These facilities are located upstream of the proposed Piceance Project facilities at the Greasewood Hub in Rio Blanco County, Colorado. **Table 1.5-1** lists currently identified nonjurisdictional facilities and the status of their environmental review. **Figure 1.5-1** illustrates these nonjurisdictional facilities.

We carefully considered the relationship between these nonjurisdictional facilities and the Piceance Project. Although many of these facilities would be functionally attached to the Piceance Project pipeline, we have concluded that these facilities do not represent actions that must be addressed at the same level of detail as the Piceance Project in this draft EIS. In addition, the facilities identified in **table 1.5-1** are existing facilities.

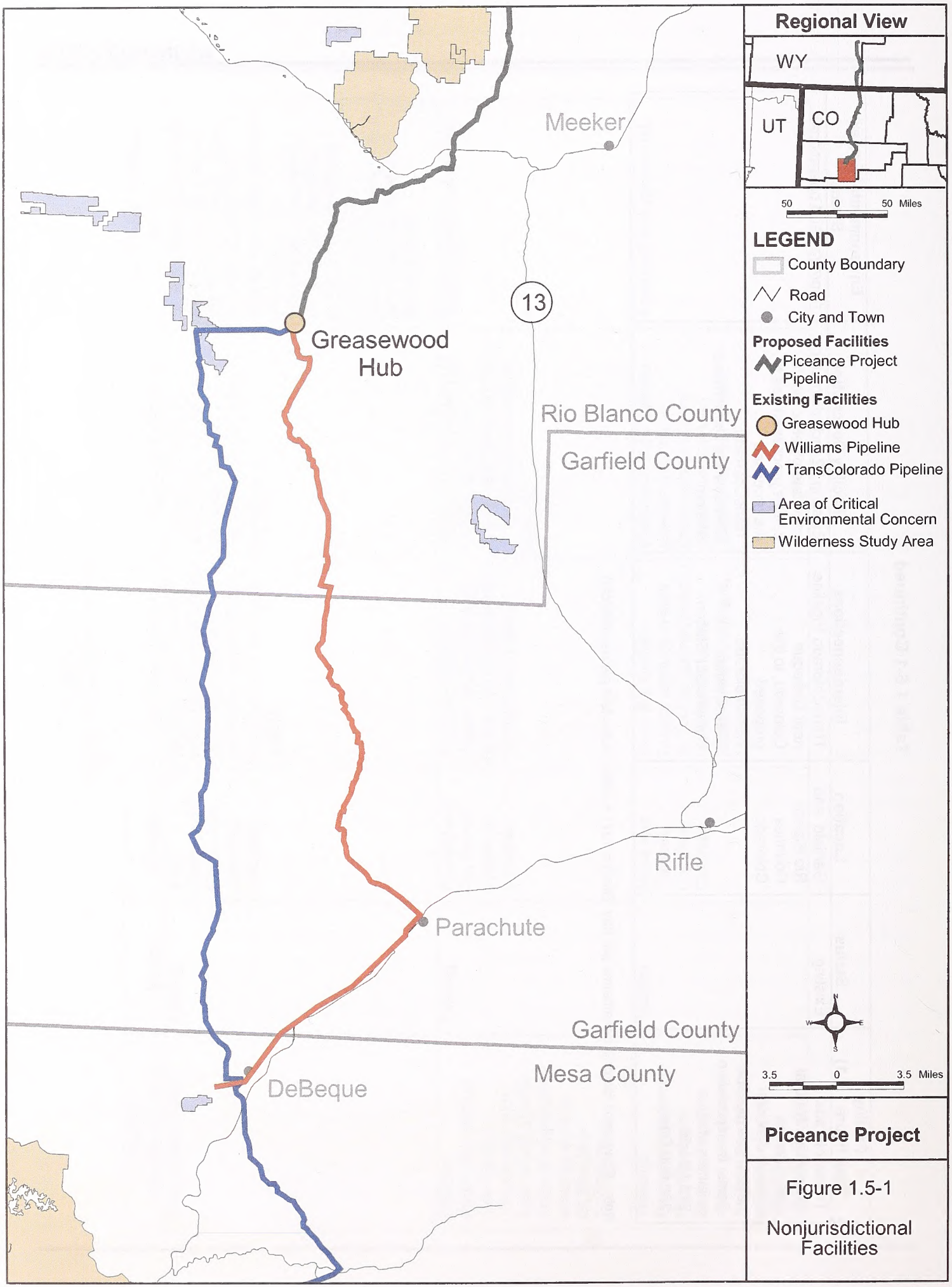
Table 1.5-1
Nonjurisdictional Facilities

Facility (see figure 1.5-1)	Status	Location	Interconnections	Facility Description	Environmental Review Status
Natural Gas Fields	Existing	Mesa, Garfield, and Rio Blanco Counties, Colorado	Multiple small diameter interconnecting pipelines with larger diameter gathering trunklines that feed gas to existing gas plants.	Natural gas wells on variable spacing (20, 40, 80 acres) that are connected to gathering pipelines.	Wells individually approved on a site-specific basis by the BLM on federal, state, and private lands with federal ownership of oil and gas rights. Wells individually approved on state and private lands under Colorado Oil and Gas Commission requirements where oil and gas rights are state or privately held.
Williams Processed Natural Gas Pipeline 16-inch-diameter natural gas pipeline (Initial transportation volumes of up to 68 MMcfd or 70,000 Dthd)	Existing	Garfield and Rio Blanco Counties, Colorado	From the Garfield County production field to the CIG Greasewood Compressor Station.	Existing 16-inch-diameter pipeline would flow processed gas to the CIG Greasewood Compressor Station.	Approved and operational.
Williams Processed Natural Gas Pipeline 24-inch-diameter natural gas pipeline (Initial transportation volumes of up to 273 MMcfd or 280,000 Dthd)	Existing	Mesa and Garfield, Counties, Colorado	From the Garfield County production field to the interconnection on the TransColorado Pipeline near DeBeque, Colorado.	Existing 24-inch-diameter pipeline would flow processed gas to the interconnection with TransColorado Pipeline.	Approved and operational.

Table 1.5-1 Continued

Facility (see figure 1.5-1)	Status	Location	Interconnections	Facility Description	Environmental Review Status
TransColorado Processed Natural Gas Pipeline 24-inch-diameter natural gas pipeline (Initial transportation volumes of up to 273 MMcfd or 280,000 Dthd)	Existing	Garfield and Rio Blanco Counties, Colorado	TransColorado Pipeline near Debeque, Colorado, to the proposed TransColorado Greasewood Compressor Station.	Existing 22-inch-diameter interstate pipeline would deliver processed gas to the proposed TransColorado Greasewood Compressor Station.	Approved and operational.

Note: Conversion factor is dekatherms per day (Dthd) = 1027 x million cubic feet per day (MMcfd).



Piceance Project

Figure 1.5-1

Nonjurisdictional Facilities

1.6 Related Actions

On January 6, 2005, TransColorado filed an application with the FERC in Docket No. CP05-45-000 to construct its North Expansion Project (CP05-45-000) that would consist of constructing a new compressor station (the TransColorado Greasewood Compressor Station[10]) and a new 2,200-foot-long interconnecting pipeline between the new compressor station and CIG's Greasewood Compressor Stations (**figure 1.6-1**). TransColorado's new compressor station would contain three compressors with a combined total of 4,670 horsepower (International Organization for Standardization [ISO] rating) and metering facilities. We consider the North Expansion Project to be a related action since it directly provides natural gas supply for the project.[11] However, the North Expansion Project is not a connected action because the compressor's function is to compress gas that is being transported northward, serving multiple northbound shippers. While the North Expansion Project would include service to the Piceance Project, it is not limited to providing compression to the Piceance Project. The North Expansion Project also would provide shippers on TransColorado's system the ability to deliver their gas into the existing interstate pipeline systems of CIG, Questar Pipeline Company, and Northwest Pipeline Company at the Greasewood Hub. As proposed, TransColorado requested approval of the North Expansion Project by the end of May 2005, with construction in the summer of 2005, and with a projected in-service date of January 2006. The North Expansion Project is on an earlier construction schedule than the Piceance Project (WIC's proposed construction would commence in the fall of 2005). The FERC is analyzing the North Expansion Project separately in an environmental assessment. Remaining pipeline facilities that connect to the gas fields have already been constructed.

On October 28, 2003, EnCana Oil and Gas USA (EnCana) filed an application with the Rawlins BLM FO to construct and operate a new interstate natural gas pipeline and related facilities in Colorado and Wyoming. The name of the applicant was later modified on the BLM application to Entrega Gas Pipeline Inc. (Entrega), a subsidiary of EnCana. On September 17, 2004, Entrega filed applications with the FERC to construct and operate a new interstate natural gas pipeline and related facilities in Colorado and Wyoming.[12] As proposed, the Entrega Pipeline Project (Entrega Project) would include:

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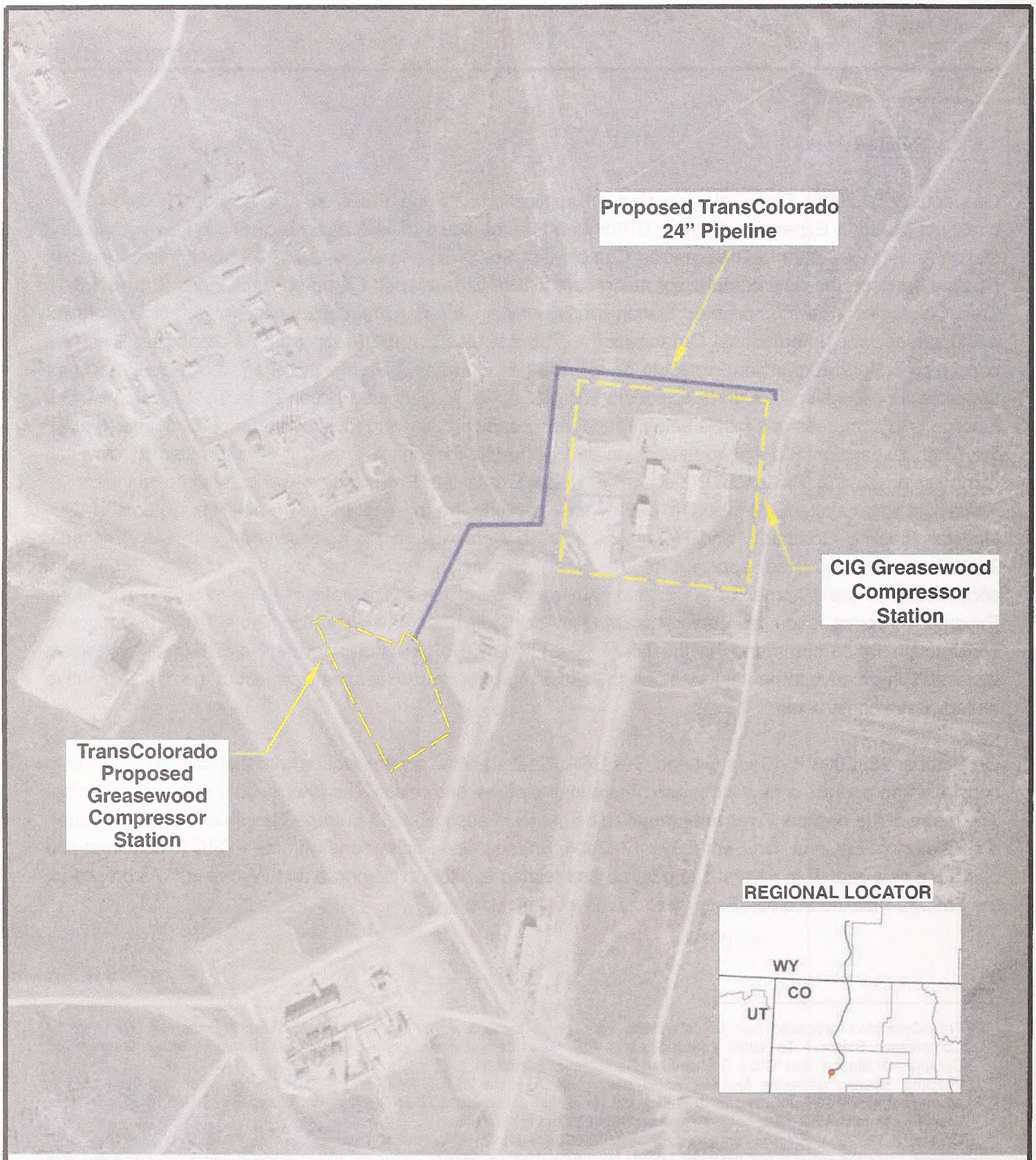
10 TransColorado's proposed and CIG's existing compressor stations at the Greasewood Hub are both named "Greasewood Compressor Station." To avoid confusion, this EIS refers to the compressor stations as "TransColorado's Greasewood Compressor Station" and "CIG's Greasewood Compressor Station."

11 Williams' existing gathering facilities would deliver up to about 70,000 Dthd at the Greasewood Hub and Williams has arrangements with TransColorado to deliver the remaining volumes (280,000 Dthd) at the Greasewood Hub. Together these volumes comprise WIC's proposal to transport 350,000 Dthd to Wamsutter.

12 On March 19, 2004, Entrega requested that the FERC initiate the NEPA Pre-filing process for the Entrega Project. The FERC granted Entrega's request and assigned Docket No. PF04-7-000 to the proceeding. On May 3, 2004, the FERC issued a *Notice of Intent to Prepare an Environmental Impact Statement for the planned Entrega Gas Pipeline Project, Request for Comments on Environmental Issues, and Notice of Public Scoping Meetings and Route Inspection* (Entrega NOI). The Entrega NOI invited public participation in stakeholder and public scoping meetings which were held in Cheyenne, Wyoming (June 7, 2004), Rawlins, Wyoming (June 8, 2004), Craig, Colorado (June 9, 2004), and Meeker, Colorado (June 10, 2004). On September 17, 2004, Entrega formally filed its application for the Entrega Project with the FERC. On that date, Entrega's Pre-Filing docket was closed and Docket Nos. CP04-413-000, et al. were assigned to the Entrega Project. The Entrega Project draft EIS was issued on February 25, 2005.



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Piceance Project

Figure 1.6-1

Relationship of Proposed TransColorado and CIG Compressor Stations

- about 327.5 miles of 36- and 42-inch-diameter new natural gas pipeline, extending between a proposed Meeker Hub in Rio Blanco County, Colorado (about 7 miles west of the Greasewood Hub) and northward into Wyoming, where it would interconnect with two existing interstate natural gas transportation pipelines at Wamsutter, Wyoming. From Wamsutter, the pipeline would head southeast, where it would interconnect with other existing pipelines at the Cheyenne Hub in Weld County, Colorado;
- 66,020 horsepower of compression at three new compressor stations;
- seven new metering stations; and
- twenty-two mainline valves.

The Entrega Project would receive natural gas from EnCana's proposed gas processing plant near the "Meeker Hub," as well as other natural gas pipelines. EnCana's proposed facilities, known as the Meeker Pipeline and Gas Plant Project, are currently being evaluated by the BLM using an environmental assessment which was issued on March 25, 2005.

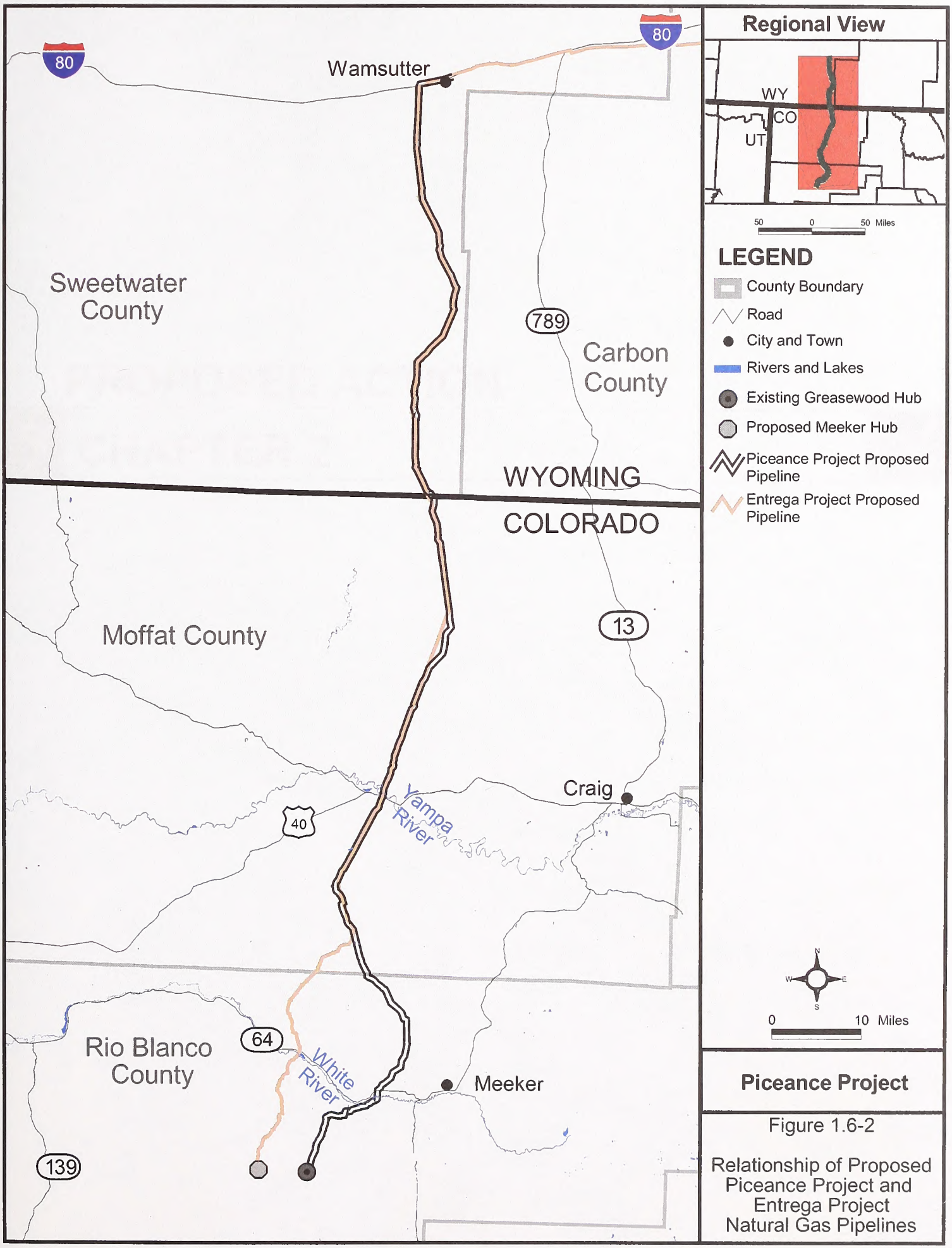
The proposed Entrega Project pipeline would be constructed in approximately 8.5 miles of new ROW along Piceance Creek from a proposed Meeker Compressor Station to an intersection with the existing 20-inch-diameter CIG Uinta Basin Lateral pipeline. The Entrega Project pipeline would parallel the Uinta Basin Lateral (and other existing pipelines) the remainder of the distance to Wamsutter, Wyoming (**figure 1.6-2**). The proposed Piceance Project pipeline would be in the same utility corridor with the Entrega Project pipeline from approximate WIC's MP 0 to MP 105.1, where they are generally parallel with the Uinta Basin Lateral. For 98 miles the two projects very closely parallel and share the same utility ROW with other existing pipelines (WIC MP 0 to MP 98). For an additional 7 miles the two projects share a broader utility corridor, but do not plan to share the same ROW (WIC MP 98 to MP 105.1). Entrega proposes to begin construction in 2005, with a desired in-service date of January 2006.

Because the Entrega Project would be located in the same utility corridor as the Piceance Project over a distance of approximately 105 miles, and both projects are proposed to be constructed in nearly the same time frame between the Piceance Basin and Wamsutter, the FERC and BLM considered whether to analyze both projects together in the same EIS. This approach was rejected because the planning for the Piceance Project was several months behind that of the Entrega Project. We determined that if either project were delayed, development of a single EIS would potentially penalize the other project by imposing unnecessary NEPA processing delays. If WIC's project development caught up with the Entrega Project prior to release of a draft EIS, the issue of a single EIS covering both projects would have been revisited. However, the Entrega Project draft EIS was issued on February 25, 2005.

Consequently, each project is being analyzed in a separate EIS; however, the combined environmental effects of both projects are being considered together where the two projects overlap. In some instances, the decisions to be made for the Entrega Project could affect the location and construction procedures for the Piceance Project. To account for the joint environmental and construction issues for both projects, route

alternatives were developed in which both projects would be located together for all or part of the pipeline segment between the Piceance Basin and Wamsutter. The purpose of these alternatives is to examine options to reduce the overall surface disturbance for both projects and a consequent reduction in resource effects. Another purpose is to determine whether one applicant's proposal would yield greater environmental protection benefits than the other proposal where the two proposed routes are geographically separate (south of MP 105.1). The rationale and scope of the route alternatives are presented in chapter 4.0. The FERC and the BLM are encouraging the two companies to work together to closely collocate their facilities wherever possible and to conduct joint construction planning with the goal of minimizing environmental impacts to the maximum extent practicable.

On February 18 and March 1 and 2, 2005, the BLM hosted meetings with both Entrega and WIC to discuss construction and reclamation procedures that each company would employ while constructing across federal lands. The FERC and BLM staff prefer that both companies use similar construction and reclamation procedures to ensure consistency between the projects and to facilitate environmental monitoring. Also discussed during these meetings were the topics of access road use and traffic management. The FERC and BLM staffs are encouraging the two companies to coordinate their traffic management plans so that impacts on traffic flow would be minimized.



Piceance Project

Figure 1.6-2

Relationship of Proposed Piceance Project and Entrega Project Natural Gas Pipelines

4/4/05

PROPOSED ACTION

CHAPTER 2

2.0 PROPOSED ACTION

WIC proposes to construct and operate a new 141.7-mile interstate natural gas transmission system from the existing CIG Wamsutter Compressor Station in Sweetwater County, Wyoming, to the existing CIG Greasewood Compressor Station in Rio Blanco County, Colorado. In addition to the pipeline, WIC would add 1,650 horsepower of compression to the existing CIG Greasewood Compressor Station, construct four interconnections and metering stations, nine mainline valves, three pigging facilities, and other associated facilities. An overview map of the project location and facilities is provided in **figure 1.1-1**. Detailed maps showing the pipeline route and aboveground facilities are contained in appendix A.

WIC plans to begin construction in October 2005 with construction completed by the end of January 2006. This would allow for an in-service date of February 1, 2006.

2.1 Proposed Facilities

2.1.1 Pipeline Facilities

The Piceance Project would consist of about 141.7 miles of 24-inch-diameter pipeline in Colorado and Wyoming. The pipeline would begin at the existing CIG Wamsutter Compressor Station (MP 0.0) located in Sweetwater County, Wyoming, and terminate at the existing CIG Greasewood Compressor Station (MP 141.7) located in Rio Blanco County, Colorado. The pipeline route would traverse Sweetwater County, Wyoming; and Moffat and Rio Blanco Counties, Colorado. The line parallels CIG's existing Uinta Basin Lateral for most of its route (MP 0 to MP 105.1); it also parallels the proposed Entrega Project along this same segment. The maximum allowable operating pressure (MAOP) of the system would be 1,480 pounds per square inch gauge (psig).

The entire pipeline would be constructed in Class 1 areas as defined by U.S. Department of Transportation (DOT) regulations at 49 CFR 192. However, the pipeline would be designed, constructed, and hydrostatically tested to meet the more stringent Class 2 requirements. The pipeline would be constructed of high-strength steel pipe (grade X70) with a wall thickness of 0.353 inch. A higher grade of pipe would be used at road and waterbody crossings in accordance with DOT regulations. All pipe would be manufactured, constructed, and operated in accordance with applicable local, state, and federal regulations.

2.1.2 Compressor Stations and Appurtenant Facilities

Minor aboveground facilities associated with the Piceance Project would include four metering stations, nine mainline valves, and three pigging facilities (**table 2.1-1**). Two metering stations, a mainline valve, and a pigging facility would be installed at both the existing CIG Wamsutter (MP 0.0) and CIG Greasewood (MP 141.7) Compressor Stations. The remaining seven mainline valves would be spaced 15 to 20 miles apart along the pipeline ROW to meet DOT valve spacing requirements. The remaining pigging facility would be installed with a mainline valve at MP 54 (County Road 4 Pigging Facility). WIC would add 1,650 horsepower of new compression at the existing CIG Greasewood Compressor Station.

Table 2.1-1
Proposed Facilities Associated with the Piceance Project

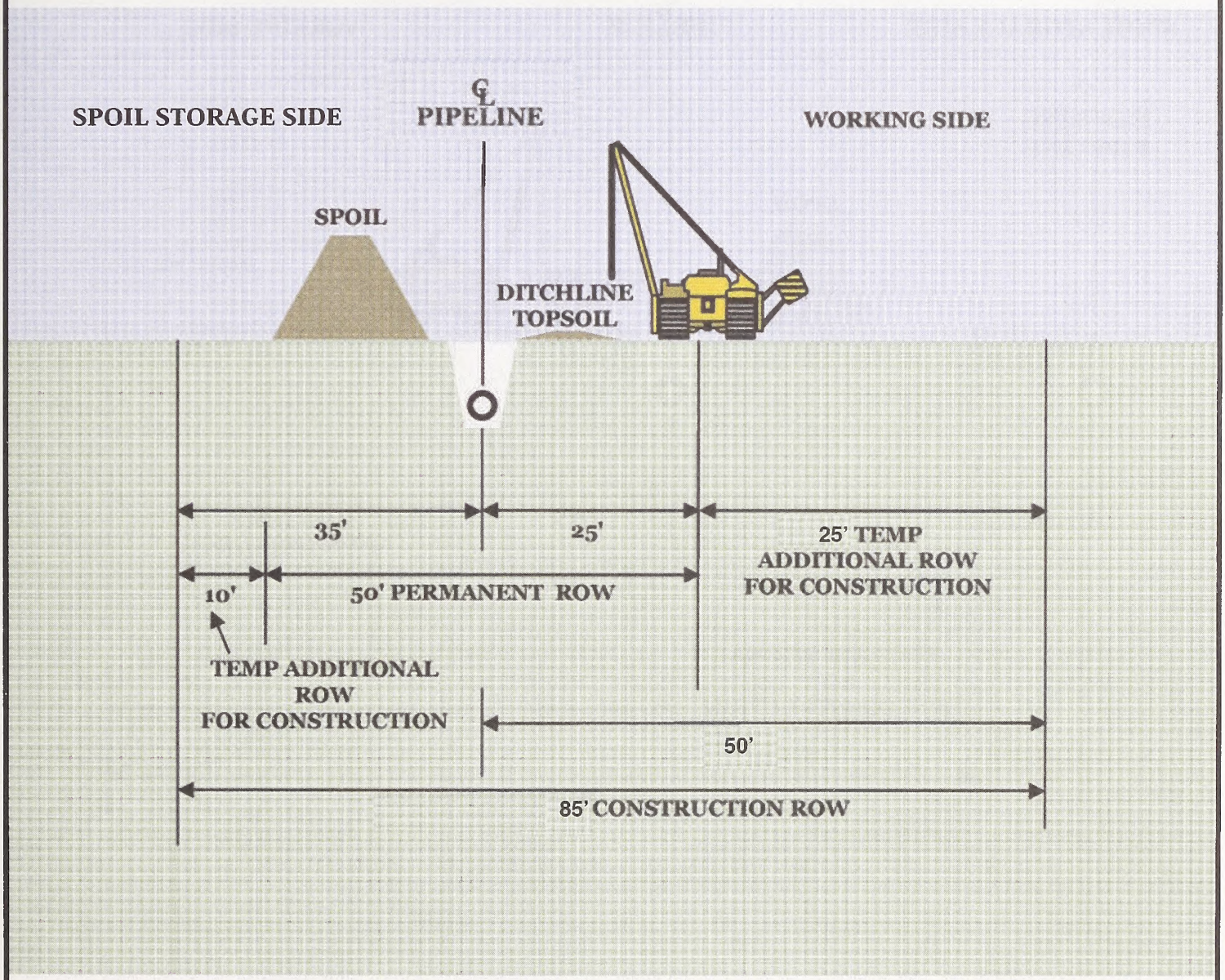
Facility Name	Milepost[1]	County, State	Map No.[2]
PIPELINE			
Wamsutter to Greasewood (24 inches in diameter)	0.0-141.7	Sweetwater County, Wyoming; Moffat and Rio Blanco Counties, Colorado	1 through 7
COMPRESSOR STATIONS			
CIG Wamsutter Compressor Station (existing) (no new compression proposed)	0.0	Sweetwater County, Wyoming	1
CIG Greasewood Compressor Station (existing) (proposed addition of 1,650 horsepower)	141.7	Rio Blanco County, Colorado	7
DELIVERY AND RECEIPT STATIONS (METERING STATIONS)			
Wamsutter Delivery Station - WIC (located at the existing CIG Wamsutter Compressor Station)	0.0	Sweetwater County, Wyoming	1
Wamsutter Delivery Station - CIG (located at the existing CIG Wamsutter Compressor Station)	0.0	Sweetwater County, Wyoming	1
CIG Greasewood Receipt Station – Williams (located at the existing CIG Greasewood Compressor Station)	141.7	Rio Blanco County, Colorado	7
CIG Greasewood Receipt Station – TransColorado (located at the existing CIG Greasewood Compressor Station)	141.7	Rio Blanco County, Colorado	7
MAINLINE VALVES (MLV)			
MLV #1	0.0	Sweetwater County, Wyoming	1
MLV #2	19.6	Sweetwater County, Wyoming	1
MLV #3	38.1	Sweetwater County, Wyoming	2
MLV #4	54.0	Moffat County, Colorado	3
MLV #5	73.0	Moffat County, Colorado	4
MLV #6	88.0	Moffat County, Colorado	5
MLV #7	106.0	Moffat County, Colorado	6
MLV #8	123.9	Rio Blanco County, Colorado	7
MLV #9	141.7	Rio Blanco County, Colorado	7
PIG LAUNCHERS AND RECEIVERS			
Wamsutter Pigging Facility	0.0	Sweetwater County, Wyoming	1
County Road 4 Pigging Facility	54.0	Moffat County, Colorado	3
Greasewood Pigging Facility	141.7	Rio Blanco County, Colorado	7

[1] All mileposts are approximate.
[2] All project facilities are presented on the maps in appendix A.

As shown in **table 2.1-1**, WIC also would construct four interconnections with existing pipelines. These would include two interconnections at the CIG Wamsutter Compressor Station (WIC and CIG pipelines) and two interconnections at the CIG Greasewood Compressor Station (Williams and TransColorado pipelines).

2.2 Land Requirements

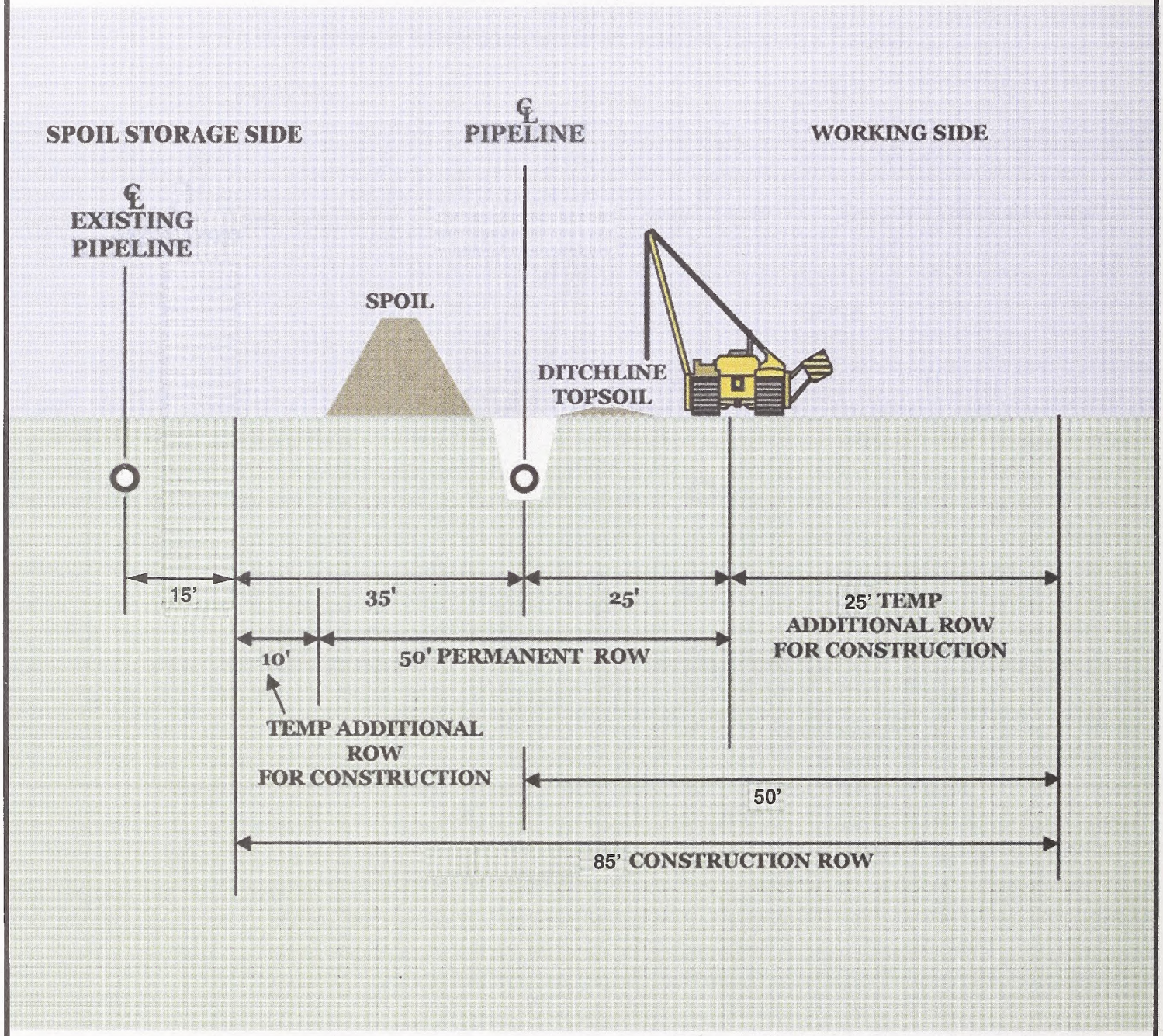
Table 2.2-1 summarizes the land requirements for the proposed Piceance Project. WIC proposes to use an 85-foot-wide construction ROW for the majority of the pipeline route. **Figure 2.2-1** illustrates the typical construction ROW and equipment work locations where the Piceance Project pipeline would not be located near an existing pipeline; **figure 2.2-2** illustrates the proposed construction ROW where the pipeline would be located parallel to an existing pipeline. WIC also has requested that the BLM authorize 50 feet of the



Piceance Project

Figure 2.2-1

Typical Construction ROW



Piceance Project

Figure 2.2-2

Typical Construction ROW when Adjacent to Existing Pipeline

Table 2.2-1
Summary of Land Requirements Associated with the Piceance Project

Facility	Milepost(s)	Land Affected During Construction (acres)	Land Affected During Operation (acres)
WYOMING			
Pipeline Facilities			
Pipeline ROW	0.0 to 51.9	535 [1]	315 [1]
Additional Temporary Workspace Areas (including staging areas)	Various	104	0
Pipe and Contractor Yards	Off-ROW; various	38 [2]	0
Pipeline Interconnections	0.0	0 [3]	0 [3]
Access Roads	Various	24	0
Wyoming Pipeline Facilities Total		*701*	*315*
Aboveground Facilities			
Compressor Station (existing Wamsutter)	0.0	11 [4]	0 [5]
Metering Station (at CIG Wamsutter Compressor Station)	0.0	0 [6]	0 [6]
Mainline Valves	0.0, 19.6, 38.1	0 [7]	<1 (0) [8]
Pig Launchers & Receivers	0.0	0 [9]	0 [9]
Wyoming Aboveground Facilities Total		*11*	*0*
Wyoming Subtotal		***712***	***315***
COLORADO			
Pipeline Facilities			
Pipeline ROW	51.9 to 141.7	926 [1]	545 [1]
Additional Temporary Workspace Areas (including staging areas)	Various	227	0
Pipe and Contractor Yards	Off-ROW; various	20 [2]	0
Pipeline Interconnections	141.7	0 [3]	0 [3]
Access Roads	Various	7	0
Colorado Pipeline Facilities Total		*1,180*	*545*
Aboveground Facilities			
Compressor Station (existing CIG Greasewood)	141.7	18 [10]	0 [5]
Metering Station (at CIG Greasewood Compressor Station)	141.7	0 [6]	0 [6]
Mainline Valves	54.0, 73.0, 88.0, 106.0, 123.9, 141.7	0 [7]	<1 (0.1) [8]
Pig Launchers & Receivers	54.0, 141.7	0 [9]	0 [9]
Colorado Aboveground Facilities Total		*18*	*<1*
Colorado Subtotal		***1,198***	***545*** [11]
PROJECT TOTAL		**1,909**	**860**

[1] Based on an 85-foot-wide construction ROW, except in wetlands where a 75-foot-wide construction ROW would be used. Operation acreage was estimated based on a 50-foot-wide permanently maintained ROW in all areas and does not include access roads.

[2] This total represents offline pipe yards only. Staging areas are proposed for use as contractor yards; land requirements are previously accounted for within additional temporary workspace areas.

[3] The pipeline interconnection construction acreage is previously accounted for under the additional temporary workspace areas (associated with the staging areas located at the CIG Wamsutter and CIG Greasewood Compressor Stations). Acres of land affected by operation is previously accounted for under the pipeline ROW.

[4] Facilities proposed for installation within the existing CIG Wamsutter Compressor Station include two interconnections, a MLV, and a pigging facility. One interconnection, the Uinta Basin Lateral interconnection, would extend about 120 feet beyond the fenceline. The disturbance area is accounted within the staging area footprint.

[5] Operation of the proposed new facilities at the existing compressor station site would not require any additional land.

[6] Two metering stations would be installed at the existing CIG Greasewood Compressor Station, and two metering stations would be installed at the existing CIG Wamsutter Compressor Station. Acres of land affected for construction and operation of these metering stations is within the compressor station total.

[7] Each MLV would be constructed within the 85-foot-wide construction ROW. Therefore, disturbance acreage is previously accounted for under the pipeline ROW total.

[8] Each MLV would be operated within the permanently maintained 50-foot-wide ROW with one exception. At MP 54, an additional 0.1 acre would be required to operate the combined MLV/pigging facility. The aboveground facility acreage is disclosed in the table; however, the total does not double-count this acreage since it is previously accounted for in the pipeline ROW.

[9] Pigging facility areas of disturbance are previously accounted for under the Compressor Station rows (for pigging facilities located at MP 0.0 and MP 141.7) or under the MLV totals (for MP 54.0).

[10] Approximately 1,650 horsepower of new compression would be installed within the existing CIG Greasewood Compressor Station. Concurrent with this installation would be the installation of two interconnections, a MLV, and a pigging facility. These facilities would be installed within the existing fenced area.

[11] Differences between the total value and the sum of the addends are due to rounding.

construction ROW centered on the pipeline to be retained as part of WIC's permanent easement, which would be permanently maintained (e.g., by periodic clearing) during operation of the new facilities. WIC has agreed to reduce the construction ROW width to 75 feet in wetlands.

Construction of the proposed Piceance Project would disturb approximately 1,909 acres of land, including the pipeline construction ROW, additional temporary workspace areas, the existing compressor station sites, pipe storage and contractor yards, and access road widening. Of this total, about 1,460 acres would be disturbed by the pipeline construction ROW, 330 acres would be disturbed by additional temporary workspace areas, 29 acres would be disturbed by staging areas associated with construction at the existing compressor stations, 58 acres would be disturbed by pipe storage and contractor yards, and 32 acres would be disturbed for improvements to existing roads required for construction access.

Approximately 860 acres of the 1,909 acres used for construction would be required for operation of the project. Of this total, all but about 0.1 acre would be for the pipeline permanent ROW. The mainline valve and pigging facility at MP 54 would be partially located outside of the typical 50-foot-wide permanent ROW and account for the additional 0.1 acre to the permanent ROW footprint. The facilities proposed at the existing compressor stations would not require any expansion to the existing outside perimeter fencing. The remaining 1,049 acres of land would be restored and allowed to revert to former uses.

Approximately 54 percent of the land (76.5 miles) crossed by the project is managed or owned by public entities with 46 percent managed by the BLM and 8 percent managed by the State of Colorado (Colorado Department of Wildlife [CDOW] and Colorado State Land Board [CSLB]). The remaining 46 percent of the lands that would be crossed are privately owned.

2.2.1 Pipeline ROW

Approximately 116 miles (82 percent) of the proposed pipeline ROW would parallel existing pipeline and powerline easements. The existing pipeline ROWs include pipelines owned by CIG, Williams, Amoco, Kinder Morgan, Western Supply Gas, Western Slope Pipeline, and Public Service of Colorado (PSCo). Starting at the CIG Wamsutter Compressor Station, the pipeline parallels CIG's existing Uinta Basin Lateral for much of its route (MP 0 to MP 105.1).[13] From MP 105.1, the proposed Piceance Project route follows a new ("greenfield") alignment through Coyote Basin to the Moffat County-Rio Blanco County line (MP 110.4). The new route then traverses Strawberry Creek Valley in Rio Blanco County heading generally southward to its crossing of the White River (MP 127.7). From the south side of the White River, the proposed route generally follows an existing powerline corridor (MP 127.0 to MP 127.3; MP 128.5 to MP 128.6; and MP 130.0 to 130.3), paralleling the river in a westerly direction until it intersects a PSCo pipeline, which it then follows on a southerly route into the CIG Greasewood Compressor Station (MP 131.3 to MP 141.7).

[13] If the Entrega Project were approved and constructed, the Piceance Project pipeline also would parallel the new Entrega Pipeline along this same segment. As proposed by both WIC and Entrega, the pipelines would typically be within a 300-foot-wide corridor, except in areas where precluded by terrain and other construction constraints.

WIC proposes to construct the pipeline using two construction spreads (see section 2.3.1). Spread 1, the southern spread, would begin at the existing CIG Greasewood Compressor Station and extend to Moffat County Road (CR) 8 (MP 75.6); Spread 2 would begin at this point and extend north to CIG Wamsutter Compressor Station. The use of two spreads would allow simultaneous construction that would reduce construction time. Pre-construction planning for each spread allows WIC to identify any required additional temporary workspace areas, pipe storage and contractor yards, and access roads that could be used during construction, pending FERC and/or BLM authorization.

2.2.2 Additional Temporary Workspace Areas

In addition to the construction ROW, WIC has identified the types of additional temporary workspace areas that would be required (**table 2.2-2**) and where these areas would be located. These additional temporary

Table 2.2-2
Dimensions and Acreage of Typical Additional Temporary Workspace Areas

Feature	Dimensions[1] (length by width in feet at each side of crossing)	Acreage[1]
Steep hill or side slopes	Length of area x width of area dependent upon hill and/or side slope grade	Varies
Spread mobilization/demobilization and staging (possible use as contractor yards)	1,200 x 415[2]	11.4
Foreign pipeline crossovers	200 x 65	0.3
Open-cut roads	200 x 32.5[3]	0.2
Bored highways and railroads	300 x 32.5[3]	0.2
Open-cut waterbodies <50 feet wide	300 x 32.5[3]	0.2
Open-cut waterbodies >50 feet wide	300 x 82.5[3]	0.6
Open-cut wetlands	150 x 32.5[3]	0.1
Directionally drilled waterbodies	200 x 57.5 plus the length of the drill[4]	0.3+

1 Dimensions and acreage are for each workspace; some crossings would require workspace on both sides of the feature.
2 Varies; Spreads 1 and 2 staging area shared.
3 Space for one crossing could consist of up to four additional temporary workspace areas. Space dimension is the minimum that would be required; actual dimensions could increase depending upon the individual crossing.
4 Space for one crossing could consist of up to four additional temporary workspace areas. Space dimension is the minimum that would be required; actual dimensions could increase depending upon the individual crossing and are dependent upon the length between the drill entry and exit point to accommodate pipe lay-down area.

workspaces would be needed for locations requiring special construction techniques (e.g., river, wetland, and road crossings; horizontal directional drill (HDD) entry and exit points; steep slopes; rocky soils) and construction staging areas. The combined acreage of those 223 locations where WIC has identified the need for additional temporary workspaces along the pipeline route is about 330 acres. The BLM will require that WIC identify the location of temporary workspaces on BLM-administered lands in WIC's POD. These workspaces would require approval of the BLM. Prior to construction, WIC would be required to file a complete and updated list of temporary workspace areas with the Secretary of the Commission (Secretary) for review and approval prior to use. Any additional temporary workspace areas on federal land would

require authorization from the BLM through a variance approval process. This process would ensure that the request complies with NEPA and cultural and biological inventory requirements prior to approval.

2.2.3 Pipe Storage and Contractor Yards

Off-ROW extra workspace areas that would be used during the construction phase of the project include pipe storage yards and contractor yards. WIC proposes to use three pipe storage and three contractor yards during construction (**table 2.2-3**). The pipe storage yards are located off-ROW; the contractor yards are

Table 2.2-3
Locations and Acreage of Pipe Storage Yards and Contractor Yards

State/Yard Name	Status	Legal Description	Acreage[1]
WYOMING			
Wamsutter Staging Area (proposed for use as contractor yard)	Existing compressor station yard (MP 0.0)	Sweetwater County Section 27, T20N, R94W	11 [2]
Wamsutter Pipe Storage Yard	Previously disturbed industrial yard	Sweetwater County Section 34, T20N, R94W	28
Cresent Junction Pipe Storage Yard	Previously disturbed industrial yard	Sweetwater County Section 15, T20N, R92W	11
COLORADO			
Craig Pipe Storage Yard	Cultivated cropland	Moffat County Section 1, T6N, R91W	20
Spreads 1 and 2 Staging Area (proposed for use as contractor yard)	Along proposed ROW near Moffat CR 8 (MP 75.44)	Moffat County Section 6, T8N, R94W	12 [2]
Greasewood Staging Area (proposed for use as contractor yard)	Existing compressor station site (MP 141.7)	Rio Blanco County Section 5, T2S, R96W	18 [2]

[1] Each yard would be accessed via existing roads.
[2] Acreage is included in **table 2.2-1** as pipe and contractor yards or compressor station yards.

located with staging areas identified for the project at the project start, terminus, and the break point between spreads (MP 75.6). To the extent practical, WIC proposes to use existing commercial/industrial sites or sites that previously have been used for construction. Existing public or private roads would be used to access each yard. Pipe storage yards and contractor yards would be used on a temporary basis and would be restored upon completion of construction.

2.2.4 Access Roads

WIC would use existing roads to provide access to most of the construction ROW. WIC plans to use 119 existing roads (about 450 miles) on a temporary basis to transport personnel, equipment, vehicles

(including high clearance vehicles and heavy trucks), and materials to project work areas. Some of these roads may not support high clearance vehicles and heavy trucks and, therefore, only would be used for light truck traffic (e.g., pickup trucks).

In most cases, the roads are existing paved or graveled public roads that would not require modification unless the road base deteriorated, making driving difficult or unsafe for both public and construction traffic. All of the two-track and dirt roads would probably require some level of improvement to support construction equipment, vehicles, and ongoing maintenance during the construction period, especially when rain or snow occurs and travel over the roads degrades their condition. Road improvements such as blading and filling would be restricted to the existing road footprint (i.e., the road would not be widened) wherever possible and where there is evidence that the road was previously graded. WIC has proposed that where there is no evidence of previous grading or if the road required widening, road maintenance would be allowed only after completing cultural resources and biological surveys and completing the appropriate State Historic Preservation Office (SHPO) and FWS consultations. In all cases, roads would be used and maintained only with permission of the landowner or land management agency.

Existing roads would be used to access the new facilities within the existing CIG Wamsutter and CIG Greasewood Compressor Stations. Mainline valves along the pipeline ROW would be located immediately adjacent to existing roads, where the ROW would be used for the short access distance. Although new permanent roads are not anticipated, if permanent access roads were needed, WIC would be required to identify the access roads and submit them to the Secretary for review and approval. At a minimum, construction of new access roads would require completion of cultural resource surveys and biological surveys, along with appropriate SHPO and FWS consultations and approvals. Other state and local permits also may be required prior to construction. In the future, maintenance of any newly created access roads would be the responsibility of WIC, with ownership over the road remaining with the affected land management agency or private landowner. Any permanent roads on federal lands would be considered an ancillary facility to the ROW and added to any grant from the BLM.

2.2.5 Aboveground Facilities

Because the facilities proposed at the existing compressor stations would not require any expansion of the outside perimeter fencing at these industrial facilities, the only additional land requirements associated with construction activities proposed at the compressor stations are the staging areas associated with these compressor stations. These staging areas account for a temporary disturbance of approximately 29 acres.

Two interconnections, two metering stations, a mainline valve, and a pigging facility would be installed within each of the existing compressor stations (CIG Wamsutter and CIG Greasewood). At the CIG Wamsutter Compressor Station, the interconnection to the Uinta Basin Lateral would extend approximately 120 feet beyond the facility's fenceline.[14] We estimate that the construction of the interconnection beyond the existing fenceline would affect an area approximately 85-foot by 120-foot (0.2 acre) in size, which is included within the staging area disturbance. WIC would add a new compressor (1,650 horsepower) at the existing CIG Greasewood Compressor Station. This compressor would be housed in a new building within the existing

[14] The existing fenceline would not be relocated.

compressor station yard. Interconnections with other pipelines would be completely contained within the existing site. Metering stations would include pressure regulating, heating, sampling, chromatography, tube switching, and electronic gas measurement equipment. The metering station at the CIG Wamsutter Compressor Station would include two meter units, one for the CIG interconnection and one for the WIC interconnection. The metering station at the CIG Greasewood Compressor Station would include two meter units, one for the Williams interconnection and one for the TransColorado interconnection. Pigging facilities would consist of pig launching or receiving equipment and would allow the pipeline to accommodate a high-resolution internal inspection tool.

Construction of the seven mainline valves not associated with the compressor stations would occur with the proposed pipeline. These valves would be fenced and represent approximately 1.2 acres of permanent land disturbance. The fenced valves would be located within the 50-foot-wide permanent pipeline easement, with one exception. The combined pigging facility and mainline valve facility at MP 54 would be located partially outside the 50-foot-wide permanent pipeline ROW, requiring an additional 0.1 acre of permanent disturbance.

2.3 Construction Procedures

At a minimum, the proposed facilities would be designed, constructed, tested, and operated in accordance with all applicable requirements included in the DOT regulations in 49 CFR 192, *Transportation of Natural Gas and Other Gas by Pipeline: Minimum Federal Safety Standards*, and other applicable federal and state regulations. These regulations are intended to ensure adequate protection for the public and to prevent natural gas pipeline accidents and failures. Among other design standards, Part 192 specifies pipeline material and qualification, minimum design requirements, and protection from internal, external, and atmospheric corrosion.

To reduce construction impact, WIC would implement its project-specific *Upland Erosion Control, Revegetation, and Maintenance Plan* (WIC's Plan) in upland areas (see appendix B) and its project-specific *Wetland and Waterbody Construction and Mitigation Procedures* (WIC's Procedures) for construction across wetlands and waterbodies (appendix C). WIC's Plan and Procedures are based on the mitigation measures contained in our *Upland Erosion Control, Revegetation, and Maintenance Plan* (FERC Plan, FERC 2003a) and *Wetland and Waterbody Construction and Mitigation Procedures* (FERC Procedures, FERC 2003b). The differences between WIC's Plan and Procedures and the FERC's Plan and Procedures generally reflect the arid western climate and do not compromise the effectiveness of the proposed mitigation or the protection of the resources. We have reviewed WIC's Plan and Procedures and believe they would provide a level of environmental protection that is equivalent to the measures contained in the FERC Plan and Procedures.

WIC's Plan and Procedures, paired with WIC's detailed project Reclamation Plan (appendix D), describe reclamation techniques and procedures, including specifics of seedbed preparation, seed mixtures and rates, seeding methods, mulching rates, success criteria, and monitoring and reporting requirements. WIC's topsoil segregation program would be an important mitigation element especially in arid habitats where vegetation is notably sensitive to disturbance and revegetation would be a slow process.

WIC has provided a proposed treatment plan for historic properties as part of its inventory report. The plan proposes various treatment options such as avoidance through reroutes or construction restrictions, data recovery prior to and after construction, monitoring, and open trench inspection. The proposed plan requires review and approval by the FERC and BLM, in consultation with the SHPOs.

WIC submitted a proposed monitoring and mitigation plan for paleontological resources as part of their paleontological evaluation and survey report. The plan proposes various mitigation options such as avoidance through reroutes, monitoring of construction activities, recording of fossil localities, excavation, and salvage. The proposed plan requires review and approval by the FERC and BLM.

In addition to WIC's Plan and Procedures, WIC has prepared specific plans that include measures to mitigate for potential impacts. These supplemental plans are included as appendices to its project-specific POD (WIC 2004) and include:

- Spill Prevention, Containment, and Countermeasure (SPCC) Plan;
- Stormwater Pollution Prevention Plan (SWPPP);
- Hydrostatic Testing Plan (appendix E);
- Waterbody Crossing Plan (appendix F);
- Blasting Plan;
- Noxious and Invasive Weed Plan (Weed Plan; appendix G);
- Fire Prevention and Suppression Plan;
- Traffic and Transportation Management Plan (TTMP);
- Emergency Response Plan (ERP);
- Reclamation Plan (appendix D);
- Unanticipated Discoveries Plan; and
- Conservation Measures Plan (appendix H).

WIC would implement its SPCC Plan to avoid or minimize the potential for harmful spills and leaks during construction. WIC's SPCC Plan describes spill prevention practices, emergency response procedures, emergency and personnel protection equipment, release notification procedures, and cleanup procedures. The SPCC Plan is discussed further under the context of many different resources (e.g., sections 3.2, 3.3, and 3.5).

The SWPPP describes measures to protect water quality and manage stormwater during construction-related activities. The SWPPP identifies best management practices (BMPs) to reduce the introduction of pollutants to stormwater, remove excess sediments from stormwater before flowing offsite, and reduce the velocity of stormwater flowing offsite. The implementation of these BMPs, coupled with the reestablishment of existing contours and vegetation along the pipeline corridor, would minimize the potential for erosion.

The Hydrostatic Test Plan (appendix E) identifies the sources and volumes of water that would be used to test the pipe prior to operation, and the discharge locations (by milepost). In the document, WIC commits to control the rates of withdrawal and discharge to minimize impacts to fish and sensitive habitats.

The Waterbody Crossing Plan (appendix F) provides engineering design specifications for the three major waterbodies crossed by the project in Colorado (the Little Snake River [MP 53.1], the Yampa River [MP 87.6] and the White River [MP 127.7]). Measures detailed in the site-specific plans would reduce environmental impacts from construction in and adjacent to waterbodies crossed by the Piceance Project. This plan includes the details for the proposed HDD crossing of the Yampa, White, and Little Snake Rivers and includes measures regarding inadvertent return.

The Blasting Plan identifies blasting procedures, including safety, use, storage, and transportation of explosives that are consistent with minimum safety requirements as defined by federal, state, and local regulations. Additionally, the plan addresses environmental aspects of blasting activities,and identifies areas of concern along the proposed pipeline route. A brief description of the major requirements of the Blasting Plan is provided in section 3.3.1.

WIC's Weed Plan (appendix G) includes site-specific measures that WIC would implement to control noxious weeds, including the use of cleaned, weed-free equipment; pressure washing of all vehicles and equipment prior to accessing the ROW; the use of compressed air to remove seeds and other propagules from equipment prior to leaving a work site; and the use of certified weed-free straw/hay bales to control erosion. A key element of the Weed Plan is WIC's proposal to identify and treat existing weed infestations prior to construction.

The Fire Prevention and Suppression Plan describes the responsibilities for prevention and suppression of fires during construction of the pipeline, defines the minimum requirements that would be incorporated into construction documents and contracts, and outlines the procedures for immediate response and notification for wildfires should they occur.

The TTMP identifies measures required for equipment access to and from the ROW during construction across federal lands. Implementation of this plan would provide dust control measures and provide for road maintenance during and after construction.

The purpose of the ERP is to identify WIC's emergency personnel and the logical sequence of actions which should be taken in the event of an emergency involving WIC system facilities during construction of the Piceance Project pipeline. Once the pipeline is constructed and pipeline operations commence, the ERP would be finalized so that it meets federal safety requirements (49 CFR 192.615). The current version of the ERP begins to establish written emergency shutdown procedures, communication coordination, and clean-up responsibilities in the event of a gas pipeline emergency or a natural disaster.

WIC's Reclamation Plan (appendix D) details measures related to soil management, seeding, mulching, special management areas (e.g., wetlands), and monitoring to combat problems associated with soil conditions, sensitive plant communities, harsh weather conditions, and repeated disturbance. The Reclamation Plan was developed in coordination with regional soil reclamation experts, wetlands and vegetation specialists, FERC guidance, the local Natural Resources Conservation Service (NRCS) offices, BLM FOs, and the Colorado State Board of Land Commissioners.

WIC's Unanticipated Discoveries Plan would be used in the event of the unanticipated discovery of cultural resources or human remains during construction. The plan includes provisions for stopping work, notification and consultation procedures with the appropriate parties, and actions to be taken in the event of an inadvertent off-ROW or workspace disturbance.

The Conservation Measures Plan (appendix H) describes the potential impacts that the proposed project would have on federally listed threatened and endangered species of plants and animals, including candidate species and species proposed for listing. The document also details proposed efforts to avoid, minimize, or mitigate impacts to these species.

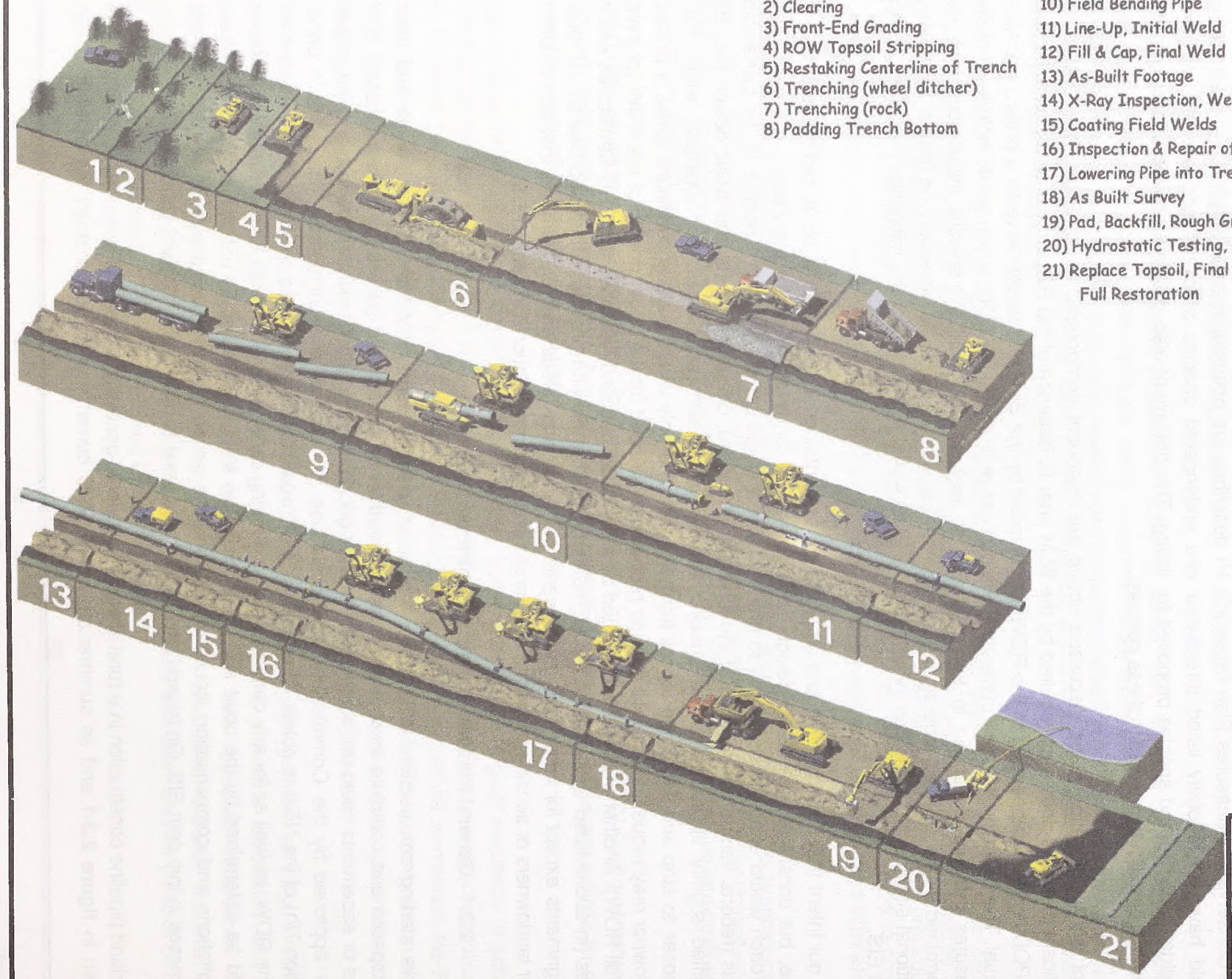
All of WIC's mitigation plans discussed above are important components of its POD. The POD is an applicant-prepared document required by the BLM prior to issuance of the ROD. If the project is approved, the POD would be appended to the ROW grant issued by the BLM and would serve as a project resource manual. The BLM and WIC are currently in the process of finalizing the POD, which would include all of the measures that are described in this draft EIS as well as additional site-specific stipulations that are determined by the affected federal land management agency (BLM) to be necessary on federal lands. Any additional site-specific measures included in the POD would not contradict the mitigation measures of this draft EIS.

It is our intent that the mitigation and other measures contained in the POD not be limited to federal lands alone, but considered the basic design applicable to all lands disturbed by the Piceance Project. This approach would enable construction to proceed with a single set of "rules," irrespective of the ownership status (federal versus non-federal) of the land being crossed. On private lands, this basic design may be modified slightly to accommodate specific landowner requests/preferences. For example, while WIC proposes to strip and segregate topsoil from the ditch line only where surface conditions allow, a private landowner may request the topsoil on their property be stripped from a larger portion of the ROW (or even the full ROW). Another example is illustrated by a condition frequently attached to FERC Certificates which states (in abbreviated version) that the FERC staff must review and provide written approval for all route realignments *except for* minor field realignments per landowner needs and requirements that do not affect other landowners or sensitive environmental areas (see recommendation 5 in section 5.5).

2.3.1 General Pipeline Construction Procedures

Before starting construction, WIC would finalize engineering surveys of the ROW centerline and extra workspaces and complete land or easement acquisition on private and state land. If the necessary land rights or easements could not be obtained through good faith negotiations with landowners and the project were approved by the Commission, WIC could use the right of eminent domain granted to it under Section 7(h) of the NGA to obtain an easement. WIC would still be required to compensate the landowners for the ROW, as well as for any damages incurred during construction. However, the level of compensation would be determined by the court system according to state laws regarding eminent domain. Easement negotiations and compensation issues are beyond the scope of our environmental review and are not addressed in this draft EIS. On federal land, WIC would need to obtain a ROW grant from the BLM.

Overland pipeline construction in a rural environment would generally proceed as a moving assembly line as shown in **figure 2.3-1** and as summarized below. WIC currently plans to construct the pipeline in two



Piceance Project

Figure 2.3-1

Typical Pipeline Construction Sequence

spreads. Spread 1 (MP 75.4 to MP 141.7) would encompass the southern portion of the project and Spread 2 (MP 0.0 to MP 75.4) would cover the northern half of the project. Typically, job-specific work crews would construct the facilities associated with the compressor stations.

Standard pipeline construction is composed of specific activities including survey and staking of the ROW, clearing and grading, trenching, pipe stringing, bending, welding, lowering-in, backfilling, hydrostatic testing, and cleanup. In addition to standard pipeline construction methods, WIC would use special construction techniques where warranted by site-specific conditions. These special techniques would be used when constructing across rugged terrain, waterbodies, wetlands, paved roads, highways, and railroads (section 2.3.2).

2.3.1.1 Survey and Staking

The first step of construction would involve marking the limits of the approved work area (i.e., the construction ROW boundaries, additional temporary workspace areas) and flagging the location of approved access roads and foreign utility lines. Wetland boundaries and other environmentally sensitive areas also would be marked or fenced for protection at this time. Before the pipeline trench is excavated, a survey crew would stake the centerline of the proposed trench.

2.3.1.2 Clearing and Grading

Before clearing and grading activities are conducted, landowner fences would be braced and cut, and temporary gates and fences would be installed to contain livestock, if present. A clearing crew would follow the fence crew and would clear the work area of vegetation and obstacles (e.g., trees, logs, brush, rocks). Grading would be conducted where necessary to provide a reasonably level work surface. Where the ground is relatively flat and does not require grading, rootstock would be left in the ground. More extensive grading would be required in steep side-slopes or vertical areas and where necessary to prevent excessive bending of the pipeline.

2.3.1.3 Trenching

The trench would be excavated to a depth that provides sufficient cover over the pipeline after backfilling. Typically, the trench would be about 4 to 6 feet wide in stable soils and about 6 to 7 feet deep, depending on the pipeline diameter and DOT class location. This would allow for the required minimum of 30 to 36 inches of cover.[15] Additional cover for the pipeline would be provided at road and waterbody crossings, while less cover (a minimum of 18 inches) is required in rock.

When rock or rocky formations were encountered, tractor-mounted mechanical rippers or rock trenchers would be used for fracturing the rock prior to excavation. In areas where mechanical equipment could not

[15] The DOT requires buried pipelines to be covered by a minimum of 30 inches of soil in all Class 1 locations. The proposed route crosses land currently designated as Class 1, defined as having ten or fewer buildings intended for human occupancy within 220 yards of the pipeline per mile. In more populated areas and beneath public road ditches and railroad crossings, the minimum cover requirement would be 36 inches of soil. In consolidated rock, the minimum cover requirement is 18 inches in Class 1 locations and 24 inches in more populated areas and beneath public road ditches and railroad crossings.

break up or loosen the bedrock, blasting would be required (section 2.3.2.5). Excavated rock would be used to backfill the trench to the top of the existing bedrock profile.

In areas where there was a need to separate topsoil from subsoil, topsoil would be graded prior to trenching. Topsoil over the ditch line would be segregated for the majority of the project (unless otherwise requested by the landowner). Clearing on the spoil side would be limited to that which is necessary for construction activity. Topsoil would be stored in a pile separate from subsoil to allow for proper restoration of the soil during the backfilling process. Spoil typically would be deposited on the non-working side of the ROW. Gaps would be left between the spoil piles to prevent stormwater runoff from backing up or flooding. Topsoil would be returned to its original horizon after subsoil was backfilled in the trench.

In areas where rangeland is used for grazing and livestock could not be temporarily relocated by the landowner, construction activities could potentially hinder the movement of livestock across those allotments. To minimize impacts on grazing areas and livestock during construction, WIC would install soft plugs (areas where the trench is excavated and replaced with minimal compaction) across the trench at the intersection of livestock trails to allow for safe livestock passage. Additionally, ramps would be installed on each side of the soft plugs to allow for the escape of livestock or wildlife if they fell into the trench.

2.3.1.4 Pipe Stringing, Bending, and Welding

Prior to or following trenching, sections of externally coated pipe up to 80 feet long (also referred to as "joints") would be transported by truck over public road networks and along authorized private access roads to the ROW and placed or "strung" along the trench in a continuous line.

After the pipe sections were strung along the trench and before joints were welded together, individual sections of the pipe would be bent where necessary to allow for uniform fit of the pipeline with the varying contours of the bottom of the trench. A track-mounted, hydraulic pipe-bending machine would shape the pipe to conform to the contours of the terrain. Where multiple or complex bends were required in a section of pipe, that section of the pipeline would be bent at the factory.

After the pipe sections were bent, the joints would be welded together into long strings and placed on temporary supports. The pipeline joints would be lined up and held in position until securely joined by welding. One hundred percent of the welds would undergo radiographic inspection (X-ray), as outlined in Title 49 CFR Part 192. Welds that do not meet established specifications would be repaired or removed. Once the welds were approved, a protective epoxy coating would be applied to the welded joints. The pipeline would then be electronically inspected or "jeeped" for faults or voids in the epoxy coating, and visually inspected for any faults, scratches, or other coating defects. Damage to the coating would be repaired before the pipeline was lowered into the trench.

2.3.1.5 Lowering-in and Backfilling

Before the pipeline is lowered in, an environmental inspector (EI) would inspect the trench to be sure it was free of livestock or wildlife that may be trapped in the trench, as well as rocks and other debris that could damage the pipe or protective coating. In areas where water had accumulated, dewatering could be

necessary to inspect the bottom of the trench. The pipeline then would be lowered into the trench. On sloped terrain, trench breakers (stacked sand bags or foam) would be installed in the trench at specified intervals to prevent subsurface water movement along the pipeline. The trench would then be backfilled using the excavated material. Segregated topsoil would be restored last, to its original grade and contour.

In rocky areas, the pipeline would be protected with a rock shield (fabric or screen that is wrapped around the pipe to protect the pipe and its coating from damage by rocks, stones, roots, and other debris). Alternatively, the trench bottom would be filled with padding material (e.g., finer grain sand, soil, or gravel) to protect the pipeline. No topsoil would be used as padding material.

2.3.1.6 Hydrostatic Testing

The pipeline would be hydrostatically tested to ensure the system was capable of withstanding the operating pressure for which it was designed. This process involves isolating the pipe segment with test manifolds, filling the line with water, pressurizing the section to a pressure commensurate with the MAOP and class location, and then maintaining that pressure for a period of 8 hours. The hydrostatic test would be conducted in accordance with Title 49 CFR Part 192. WIC proposes to obtain water for hydrostatic testing from surface water sources through specific agreements with landowners and in accordance with federal, state, and local regulations. The pipeline would be hydrostatically tested after backfilling and all construction work that would directly affect the pipe has been completed. If leaks were found, the leaks would be repaired and the section of pipe retested until specifications were met. Water used for the testing would then be transferred to another pipe section for subsequent hydrostatic testing or the water would be analyzed to ensure compliance with the National Pollution Discharge Elimination System (NPDES) discharge permit requirements, treated if necessary, and discharged. Hydrostatic testing is discussed further in sections 3.3.2, 3.5.1, and 3.6.3.

2.3.1.7 Final Tie-in

Following successful hydrostatic testing, test manifolds would be removed and the final pipeline tie-ins would be made and inspected.

2.3.1.8 Commissioning

After final tie-ins are complete and inspected, the pipeline would be cleaned and dried using mechanical tools (pigs) that are moved through the pipeline with pressurized, dry air. The pipeline would be dried to minimize the potential for internal corrosion. Once the pipe has dried sufficiently, pipeline commissioning would commence. Commissioning involves activities to verify that equipment has been properly installed and is working, the controls and communications systems are functional, and that the pipeline is ready for service. In the final step, the pipeline is prepared for service by purging the line of air and loading the line with natural gas.

2.3.1.9 Cleanup and Restoration

During cleanup, construction debris on the ROW would be disposed of and work areas would be final graded. Preconstruction contours would be restored, unless otherwise directed by the landowner or land managing agency. Appropriately spaced breaks would be left in the mounded topsoil and spoil piles to prevent interference with groundwater runoff and irrigation. Segregated topsoil would be spread over the surface of the ROW, and permanent erosion controls would be installed. After backfilling, WIC would begin final cleanup as soon as weather and site conditions permit. Every reasonable effort would be made to complete final cleanup (including final grading and installation of erosion control devices) within 20 days after backfilling the trench. Construction debris would be cleaned up and taken to a disposal facility.

After permanent erosion control devices are installed and final grading has been completed, WIC would see all disturbed work areas as soon as possible. Seeding is intended to stabilize the soil, improve the appearance of the area disturbed by construction, and, in some cases, restore native flora. Timing of the reseeding efforts would depend upon weather and soil conditions and would be subject to the prescribed dates and seed mixes specified by the landowner, land-managing agency, or NRCS recommendations.

WIC would restrict access along the ROW using gates, boulders, or other barriers to minimize unauthorized entry by all terrain vehicles. BLM would encourage the use of large woody debris to be used to control unauthorized access, when such debris is available. Pipeline markers would be installed at fence and road crossings to show the location of the pipeline. Markers would identify the owner of the pipeline and convey emergency information. WIC also would install special markers providing information and guidance to aerial patrol pilots.

2.3.2 Special Construction Procedures

In addition to standard pipeline construction methods, WIC would use special construction techniques where warranted by site-specific conditions. These special techniques would be used when constructing across paved roads, highways, railroads, steep terrain, waterbodies, and wetlands, and when blasting through rock. These are described below.

2.3.2.1 Road, Highway, and Railroad Crossings

WIC's TTMP identifies mitigation to reduce potential impacts of project-related road use and construction activity, and plans for maintenance or moderate upgrading of existing access roads. Construction across paved roads, highways, and railroads would be in accordance with the requirements of WIC's road and railroad crossing permits and approvals obtained by WIC. In general, major paved roads, highways, and railroads would be crossed by boring beneath the road or railroad. Boring requires the excavation of a pit on each side of the feature, the placement of boring equipment in the pit, then boring a hole under the road at least equal to the diameter of the pipe. Once the hole was bored, a prefabricated pipe section would be pushed through the borehole. For long crossings, sections could be welded onto the pipe string just before being pushed through the borehole. Boring would result in minimal or no disruption to traffic at road, highway, or railroad crossings. Each boring would be expected to take 2 to 10 days.

Most smaller, unpaved roads and driveways would be crossed using the open-cut method where permitted by local authorities or private owners. The open-cut method would require temporary closure of the road to traffic and establishment of detours. If no reasonable detour was feasible, at least one lane of traffic would be kept open, except during brief periods when it is essential to close the road to install the pipeline. Most open-cut road crossings would be completed and the road resurfaced in 1 or 2 days. WIC would take measures, such as posting signs at open-cut road crossings, to ensure safety and minimize traffic disruptions.

2.3.2.2 Steep Terrain

WIC has identified multiple areas that contain rough or steep terrain that would require additional workspace areas (**table 2.3-1**). Additional grading may be required in areas where the proposed pipeline route would cross steep slopes. Steep slopes often need to be graded down to a gentler slope to accommodate pipe-bending limitations. In such areas, the slopes would be cut away and, after the pipeline was installed, reconstructed to their original contours during restoration.

Table 2.3-1
Extra Workspaces Associated with Difficult Terrain Along the Proposed Piceance Project

Milepost Begin	Milepost End	ROW Width (feet)	ROW Length (feet)	Additional Acres[1]	Description
4.2	4.7	150	1,200	1.8	Rock ridges
20.3	20.5	175	1,072	2.2	Terrain
21.7	21.9	300	1,168	5.8	Side hill ridge crossing
28.1	28.3	200	676	1.8	Rocky ridge
33.4	33.7	150	1,979	3.0	Terrain
38.3	79.3	110 to 300	77,306	82.0	Rough terrain
85.7	86.2	100	2,239	0.8	Rough terrain
104.2	104.3	150	720	1.1	Rough terrain
110.3	112.9	150 to 200	9,252	14.6	Terrain, side hill
114.7	114.8	150	666	1.0	Terrain
116.7	117.4	110	3,751	2.2	Terrain
128.5	135.7	150 to 200	19,086	46.3	Rough terrain, side hill

[1] Acres in addition to disturbance associated with the typical construction ROW.

In areas where the proposed pipeline route crosses laterally along the side of a slope, cut-and-fill grading may be required to obtain a safe, flat, work terrace. Generally, on steep side-slopes, soil from the high side of the ROW would be excavated and moved to the low side of the ROW to create a safe and level work terrace. Under these circumstances, WIC would strip topsoil from the entire width of the ROW. After the pipeline is installed, the soil from the low side of the ROW would be returned to the high side, topsoil replaced, and the slope's original contours would be restored.

In steep terrain, temporary sediment barriers such as silt fence and certified weed-free straw bales would be installed during clearing to prevent the movement of disturbed soil off the ROW. Temporary slope breakers consisting of mounded and compacted soil would be installed across the ROW during grading, and permanent slope breakers would be installed during cleanup. Following construction, WIC would apply seed to steep slopes and mulch the ROW with certified weed-free hay or non-brittle straw, or cover it with erosion control fabric. WIC would use certified weed-free mulching materials approved by the BLM on the portion of the route that is under BLM jurisdiction. Sediment barriers would be maintained across the ROW until permanent vegetation is established.

2.3.2.3 Waterbody Crossings

A total of 4 perennial waterbodies and approximately 178 intermittent waterbodies would be crossed by the proposed Piceance Project. Some of these waterbodies would be crossed multiple times. When crossing waterbodies, WIC would adhere to the guidelines outlined in WIC's Plan and Procedures (appendices B and C) and the requirements of its waterbody crossing permits.

With the exception of the White, Yampa, and Little Snake Rivers that would be crossed using the HDD method, WIC's preferred method to cross a waterbody that was flowing at the time of construction typically would be the open-cut method. The open-cut crossing method would involve trenching through the waterbody while water continues to flow through the trenching area. If no water were flowing at the time of construction, then WIC would cross the waterbody using conventional upland cross-country construction techniques. The flume, dam-and-pump, and HDD methods also could be considered as alternative crossing methods. The flume crossing method would involve diverting the flow of water across the trenching area through one or more flume pipes placed in the waterbody. The dam-and-pump method is similar to the flume method except that pumps and hoses would be used instead of flumes to move water around the construction work area. The HDD method would involve drilling a hole under the waterbody and installing a prefabricated segment of pipe through the hole.

WIC has prepared a Waterbody Crossing Plan that addresses the crossings of the Little Snake (MP 53.1), Yampa (MP 87.6), and White Rivers (MP 127.7). WIC would avoid impacts to endangered fish and other aquatic biota by using the HDD method of construction across the White, Yampa, and Little Snake Rivers. The HDD method involves drilling a pilot hole under the waterbody and banks, then enlarging the hole through successive reamings until the hole is large enough to accommodate a prefabricated segment of pipe. Throughout the process of drilling and enlarging the hole, a slurry made of non-toxic fluids, such as bentonite and water, would be circulated through the drilling tools to lubricate the drill bit, remove drill cuttings, and hold the hole open. This slurry is referred to as drilling mud. Pipe sections long enough to span the entire crossing would be staged and welded along the construction work area on the opposite side of the waterbody and then pulled through the drilled hole. Ideally, use of the HDD method results in no impact on the banks, bed, or water quality of the waterbody being crossed. **Figure 2.3-2** shows a conceptual HDD waterbody crossing.

Regardless of the crossing method, additional temporary workspace areas would be required on both sides of all waterbodies to stage construction, fabricate the pipeline, and store materials. For most crossings,

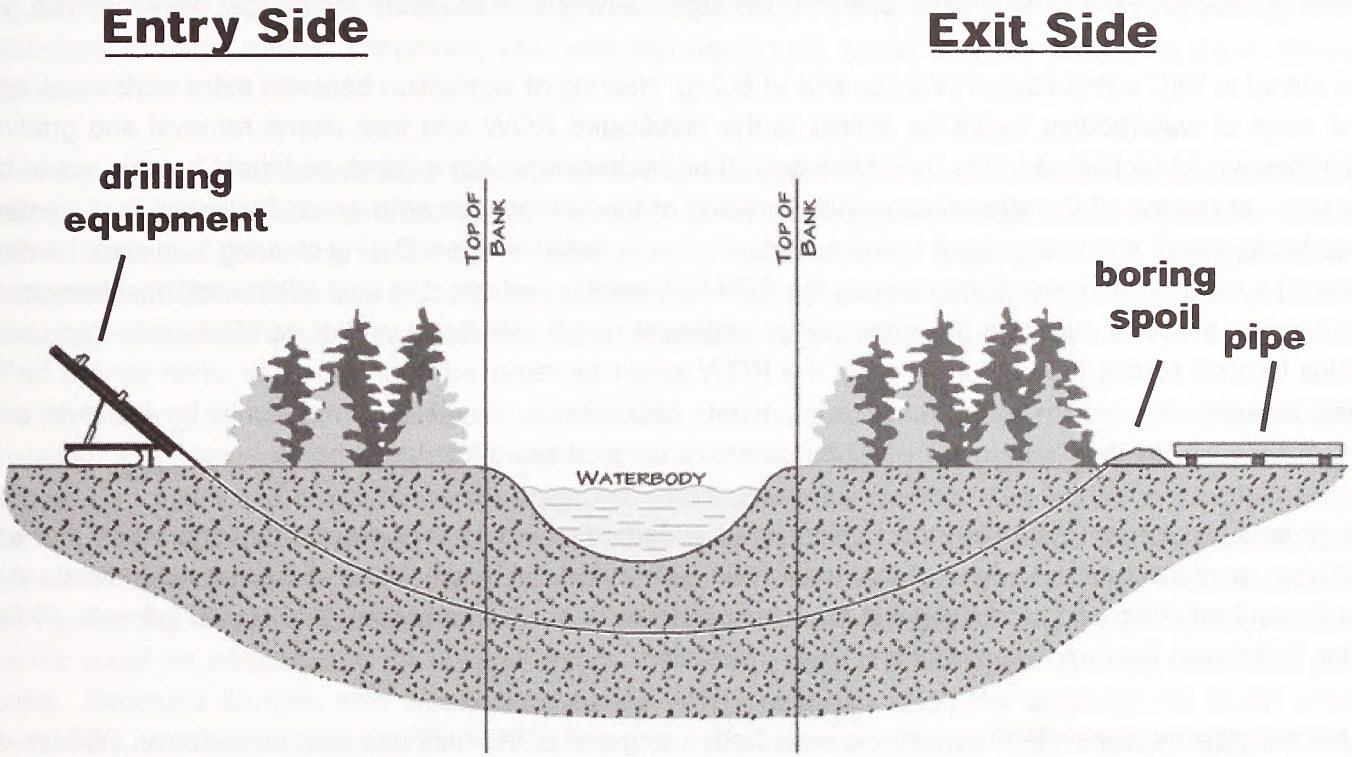


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Figure 2.3-2
Piceance Project
Conceptual Horizontal Directionally Drilled Waterbody Crossing

these workspaces would be located at least 50 feet away from the water's edge, except where the adjacent upland consists of actively cultivated or rotated cropland or other disturbed land.

Before construction, temporary bridges (e.g., clean rock fill over culverts, timber mats supported by flumes, railcar flatbeds, flexi-float apparatus) would be installed across all perennial waterbodies to allow construction equipment to cross. Construction equipment would be required to use the bridges, except the clearing crew who would be allowed one pass through the waterbodies before the bridges were installed.

As stated in WIC's Procedures (V.B.2.c and VI.B.2.g), clearing of vegetation between extra work areas and the edge of waterbodies would be limited to the certificated ROW and tree stump removal and grading activities would be limited to the trenchline only. If no herbaceous strip existed, sediment barriers would be installed at the top of the streambank. Initial grading of the herbaceous strip would be limited to the extent needed to create a safe approach to the waterbody and to install bridges. During clearing, sediment barriers would be installed and maintained across the ROW adjacent to waterbodies and within additional temporary workspace areas to minimize the potential for sediment runoff. Silt fence and/or certified weed-free straw bales located across the working side of the ROW would be removed during the day when vehicle traffic was present and would be replaced each night. Alternatively, drivable berms could be installed and maintained across the ROW in lieu of silt fence and/or certified weed-free straw bales.

In general, equipment refueling and lubricating at waterbodies would take place in upland areas that are 100 feet or more from the edges of the water (500 feet on federal lands). When circumstances dictate that equipment refueling and lubricating would be necessary in or near waterbodies, WIC would follow its SPCC Plan to address the handling of fuel and other materials.

After the pipeline is installed beneath the waterbody using one of the methods described above, WIC would begin restoration. Waterbody banks would be restored to preconstruction contours or to a stable angle of repose. Rock riprap or gabion baskets (rock enclosed in wire bins) would be installed as necessary on steep waterbody banks in accordance with permit requirements. More stable banks would be seeded with native grasses and certified weed-free mulch or covered with erosion control fabric. Waterbody banks would be temporarily stabilized within 24 hours of completing in-stream construction. Sediment barriers, such as silt fence and/or certified weed-free straw bales or drivable berms would be maintained across the ROW at all waterbody approaches until permanent vegetation was established. Temporary equipment bridges would be removed following construction.

2.3.2.4 Wetland Crossings

Based on field delineations, the proposed pipeline route would cross 25 wetlands. Pipeline construction across wetlands would be similar to typical conventional upland cross-country construction procedures, with several modifications and limitations to reduce the potential for pipeline construction to affect wetland hydrology and soil structure. To minimize impacts to the environment, WIC would cross wetlands using the methods outlined in WIC's Procedures.

WIC would use a 75-foot-wide construction ROW through wetlands. Additional temporary workspace areas would be required on both sides of wetlands to stage construction, fabricate the pipeline, and store

materials. These additional temporary workspace areas would be located in upland areas a minimum of 50 feet from the wetland edge.

Construction equipment working in wetlands would be limited to that essential for clearing the ROW, excavating the trench, fabricating and installing the pipeline, backfilling the trench, and restoring the ROW. In areas where there is no reasonable access to the ROW except through wetlands, non-essential equipment would be allowed to travel through wetlands only if the ground was firm enough or had been stabilized to avoid rutting. Otherwise, non-essential equipment would only be allowed to travel through wetlands once.

Clearing of vegetation in wetlands would be limited to trees and shrubs, which would be cut flush with the surface of the ground and removed from the wetland. To avoid excessive disruption of wetland soils and the native seed and rootstock within the wetland soils, stump removal, grading, topsoil segregation, and excavation would be limited to the area immediately over the trenchline. A limited amount of stump removal and grading could be conducted in other areas if dictated by safety-related concerns.

During clearing, sediment barriers such as silt fence and staked certified weed-free straw bales would be installed and maintained adjacent to wetlands and within additional temporary workspace areas as necessary to minimize the potential for sediment runoff. Sediment barriers also would be installed across the full width of the construction ROW at the base of slopes adjacent to wetland boundaries. Silt fence and/or certified weed-free straw bales installed across the working side of the ROW would be removed during the day when vehicle traffic was present and would be replaced each night. Alternatively, drivable berms could be installed and maintained across the ROW in lieu of silt fence or certified weed-free straw bales. Sediment barriers also would be installed within wetlands along the edge of the ROW, where necessary, to minimize the potential for sediment to run off the construction ROW and into wetland areas located outside the work area.

The method of pipeline construction used in wetlands would depend largely on the stability of the soils at the time of construction. If wetland soils are not excessively saturated at the time of construction and can support construction equipment on equipment mats, timber riprap, or certified weed-free straw mats, construction would occur in a manner similar to conventional upland cross-country construction techniques. In unsaturated wetlands, topsoil from the trenchline would be stripped and stored separately from subsoil. Topsoil segregation generally would not be possible in saturated soils.

Where wetland soils were saturated and/or inundated, the pipeline could be installed using the push-pull technique. The push-pull technique would involve stringing and welding the pipeline outside of the wetland and excavating and backfilling the trench using a backhoe supported by equipment mats or timber riprap. The prefabricated pipeline would be installed in the wetland by equipping it with buoys and pushing or pulling it across the water-filled trench. After the pipeline was floated into place, the floats would be removed and the pipeline would sink into place. Most pipe installed in saturated wetlands would be coated with concrete or equipped with set-on weights to provide negative buoyancy.

Because little or no grading would occur in wetlands, restoration of contours would be accomplished during backfilling. Prior to backfilling, trench breakers would be installed where necessary to prevent the

subsurface drainage of water from wetlands. Where topsoil has been segregated from subsoil, the subsoil would be backfilled first, followed by the topsoil. Topsoil would be replaced to the original ground level leaving no crown over the trenchline. In some areas where wetlands overlie rocky soils, the pipe would be padded with rock-free soil or sand before backfilling with native bedrock and soil. Equipment mats, timber riprap, gravel fill, geotextile fabric, and/or certified weed-free straw mats would be removed from wetlands following backfilling.

Where wetlands are located at the base of slopes, permanent slope breakers would be constructed across the ROW in upland areas adjacent to the wetland boundary. Temporary sediment barriers would be installed where necessary until revegetation of adjacent upland areas was successful. Once revegetation was successful, sediment barriers would be removed from the ROW and disposed of properly.

In wetlands where no standing water was present, the construction ROW would be seeded in accordance with the recommendations of the local soil conservation authorities. Lime, mulch, and fertilizer would not be used in wetlands.

2.3.2.5 Blasting

Because the majority of construction activities would occur within a previously disturbed utility corridor, WIC anticipates that blasting in areas other than in the ditch line would be limited. WIC has stated that limited blasting might be required in areas where competent shallow bedrock or boulders were encountered that could not be removed by conventional excavation methods (**table 2.3-2**). If blasting were required to clear

Table 2.3-2
General Locations of Shallow Bedrock
(by Milepost)

Starting MP	Ending MP
4.7	7.7
20.3	51.5
54	57.7
76.5	76.7
84.3	84.4
95.9	96
110.5	110.6
120.9	141.7

the ROW and to fracture the ditch, strict safety precautions would be followed. WIC would exercise extreme care to avoid damage to underground structures, cables, conduits, pipelines, and underground watercourses or springs. To protect property or livestock, WIC would provide adequate notice to adjacent landowners or tenants in advance of blasting. Blasting activity would be performed during daylight hours and in compliance with federal, state, and local codes and ordinances and manufacturers' prescribed safety procedures and industry practices. Blasting would not occur in streams.

2.3.2.6 Residential Construction

WIC did not identify any residences located within 50 feet of the proposed construction ROW. Impacts to residences are not anticipated. As such, residential construction mitigation is not applicable to the Piceance Project.

2.3.2.7 Fences and Grazing

WIC would contact grazing lessees and appropriate BLM office prior to crossing any fence on public lands or any fence between public and private land, and would offer the BLM and lessee the opportunity to be present when the fence is cut so that the BLM and lessee can be satisfied that the fence was adequately braced and secured. The grazing permitees would be contacted prior to the start of construction and reclamation on their allotments. To prevent the passage of livestock, the opening in the fenceline would be temporarily closed when construction crews left the area. If gaps in natural barriers used for livestock control were created by the pipeline construction, the gaps would be fenced according to the landowners or land management agency requirements. Whenever possible, a minimum of 10 feet of undisturbed area would be maintained where the pipeline paralleled a fenceline.

All existing improvements, such as fences, gates, irrigation ditches, cattle guards, and reservoirs would be maintained during construction and repaired to pre-construction conditions or better. If pipelines transporting water for livestock and wildlife were damaged by construction activities, WIC would repair the pipelines to the landowner or land management agency specifications. If needed, WIC has committed to providing an emergency source of potable water.

2.3.2.8 Construction Immediately Adjacent to Foreign Lines

Between MP 96.5 and MP 105.1 (near Bob Hughes and Deception Creeks), WIC proposes to locate the pipeline along and parallel to CIG's existing Uinta Basin Lateral and Kinder Morgan's Rocky Mountain Pipeline. This area is characterized by steep drainages and narrow canyon terrain. Where possible, the proposed pipeline would be constructed 50 feet east of the existing Uinta Basin Lateral or the Rocky Mountain Pipeline. In locations where this is not feasible, WIC has proposed to locate its line within 20 feet or less of one or both of the existing pipelines, generally between the two existing pipelines. WIC would arrange with its affiliate, CIG, to restrict flows or reduce pressure in the Uinta Basin Lateral during construction periods to allow heavy equipment to work over the CIG line. Spoil from the ditch would be cast over the Rocky Mountain Pipeline and no equipment would move back and forth over that particular pipeline. Once construction was completed, flows and/or pressures in the Uinta Basin Lateral would resume at normal levels.

2.3.3 Aboveground Facility Construction Procedures

Construction activities at each of the Piceance Project aboveground facility locations would follow a standard sequence of activities: clearing and grading, installing of the proposed facilities, and erecting the appropriate structures (e.g., to house the new compressor at the CIG Greasewood Compressor Station) or fencing (e.g., to protect the mainline valves). Construction activities and the storage of building materials

would be confined to the designated work areas at the existing CIG Wamsutter and CIG Greasewood Compressor Stations and the pipeline ROW. **Figures 2.3-3** and **2.3-4** illustrate the locations of the existing compressor stations and proposed aboveground facilities in relation to surrounding topography and land uses. Similarly, **figure 2.3-5** illustrates the location of pigging facility and the mainline valve at MP 54.

The valves, pigging facilities, metering stations, and interconnections proposed at the CIG Wamsutter and CIG Greasewood Compressor Stations would be installed within or immediately adjacent to the existing, fenced industrial facility. The aboveground perimeter fencing of these stations would not change as a result of the installation of the proposed facilities.

WIC proposed to install 1,650 horsepower of additional compression at the existing CIG Greasewood Compressor Station. A new compressor building would be built to house this compressor and would be acoustically treated to attenuate sound. Natural gas piping, both aboveground and belowground associated with the installation of the interconnections, metering stations, and pigging facilities at the two existing compressor stations, would be installed and pressure-tested using methods similar to those used for the main pipeline. After testing is successfully completed, the piping would be tied in to the main pipeline. Piping installed below grade would be coated for corrosion protection prior to backfilling. In addition, all below grade facilities would be protected by a cathodic protection system. Before being put into service, compressors, controls, and safety devices would be checked and tested to ensure proper system operation and activation of safety mechanisms, as necessary.

The existing CIG Wamsutter and CIG Greasewood Compressor Stations already have electrical power and telephone facilities. No changes to these services are proposed.

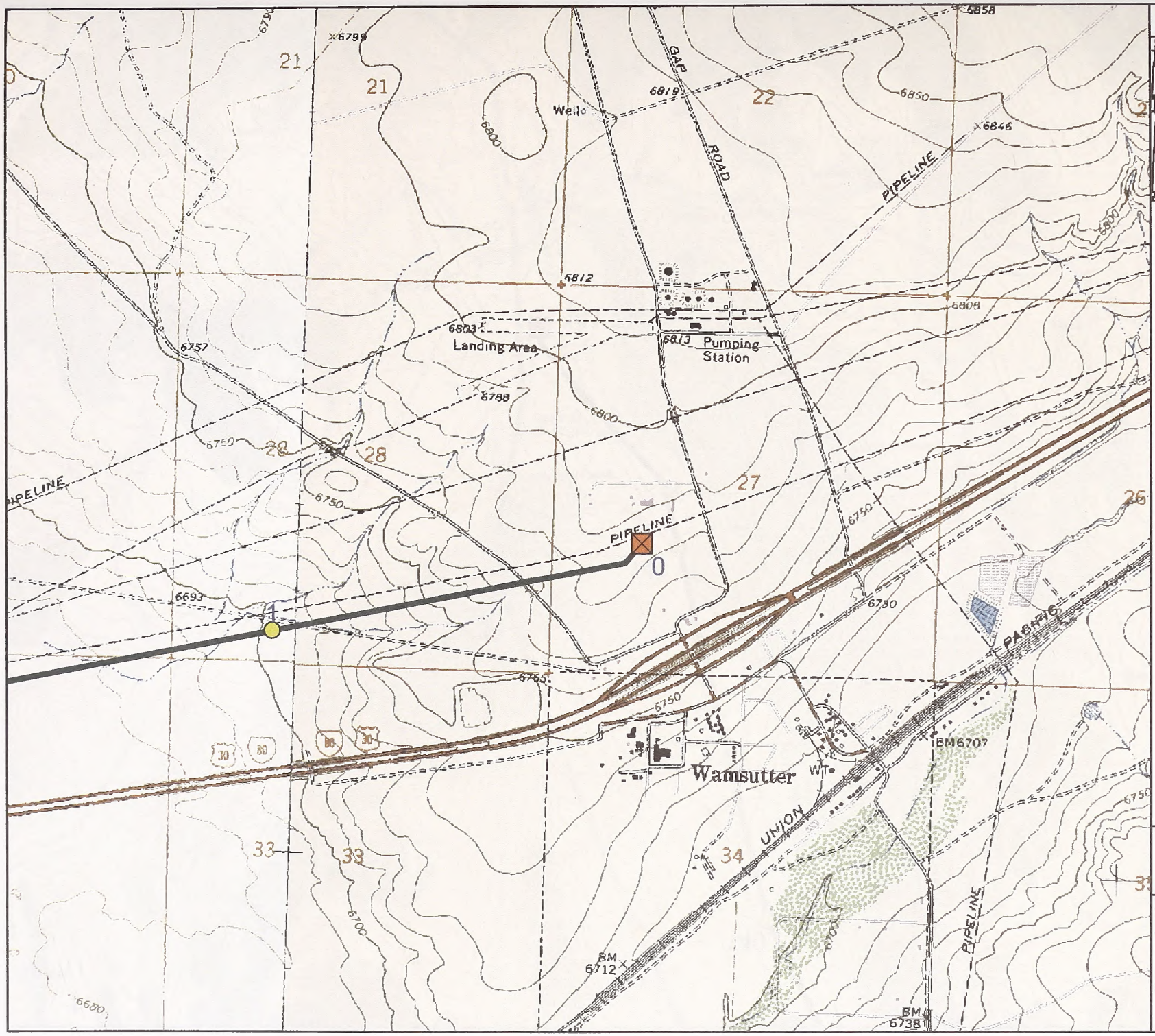
Mainline valve construction would be concurrent with the construction of the pipeline with valves installed at spacings as required by the DOT (49 CFR 192). Mainline valves would be located near public roads or within existing compressor station facilities to allow year-round access. Permanent access roads or approaches would be constructed to each mainline valve site.

2.3.4 Corrosion Protection and Detection Systems

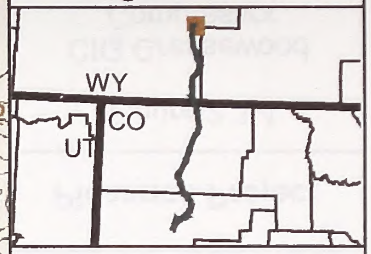
An external coating would be applied to the pipeline and all buried facilities to reduce external corrosion. Impressed current cathodic protection would be installed along the pipeline.

2.4 Construction Workforce and Schedule

WIC proposes to begin construction by October 1, 2005, and begin service by February 1, 2006. Winter construction is complicated by weather conditions and can result in environmental impacts that differ from construction during other seasons. Consequently, **we recommend that WIC develop a Winter Construction Plan to address construction and reclamation procedures as well as specific mitigation measures. WIC should file this plan with the Secretary and the BLM <u>prior to the closing of the draft EIS comment period</u>. The Winter Construction Plan should include the following information:**



Regional View



50 0 50 Miles

LEGEND

- Proposed Pipeline
- CIG Existing Wamsutter Compressor Station
- Milepost

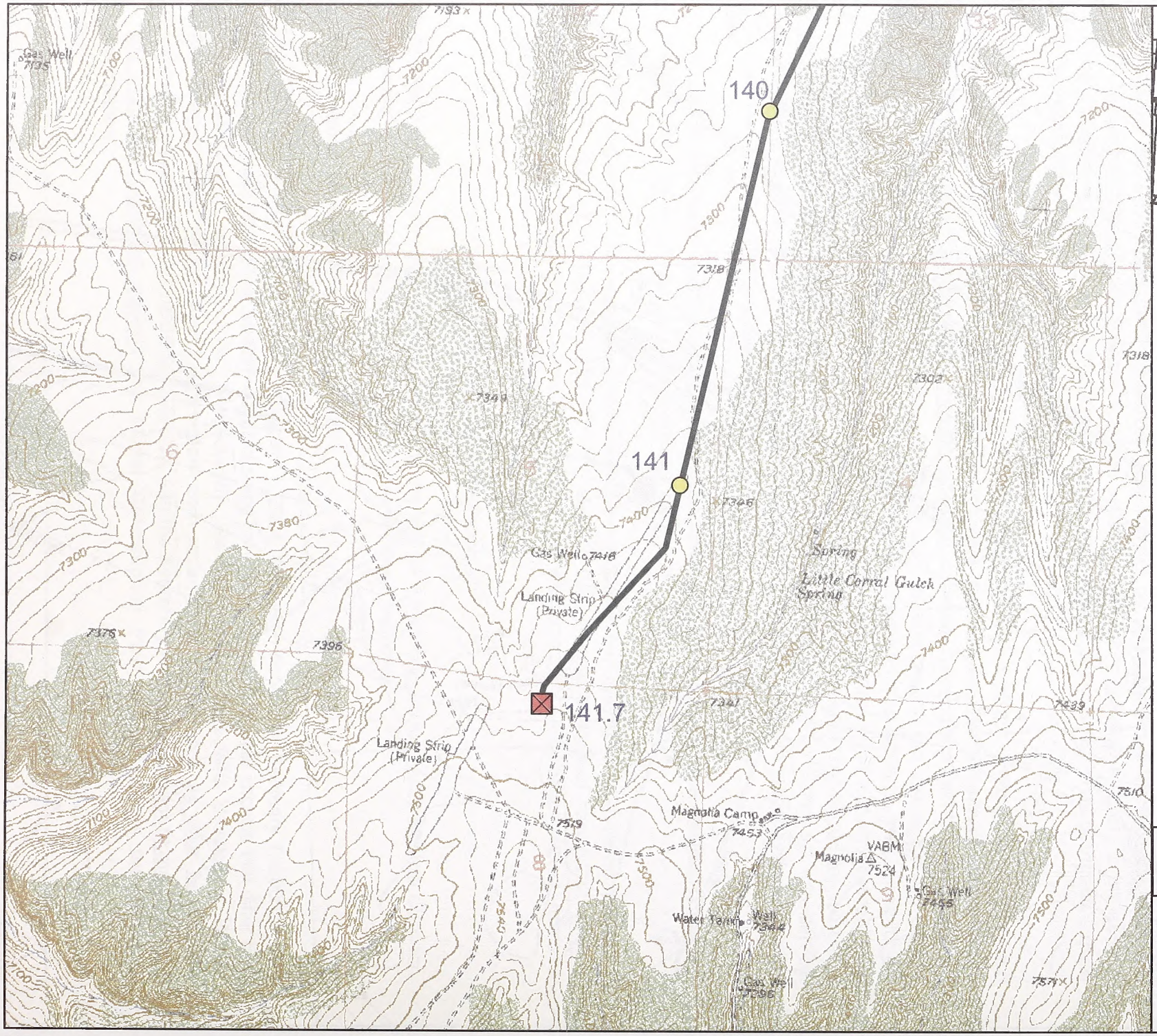
1000 0 1000 Feet

Piceance Project

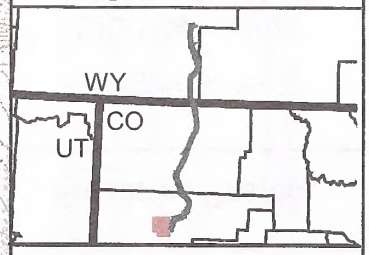
Figure 2.3-3

CIG Wamsutter Compressor Station

4/4/05



Regional View



50 0 50 Miles

LEGEND

- Proposed Pipeline
- Existing CIG Greasewood Compressor Station
- Milepost

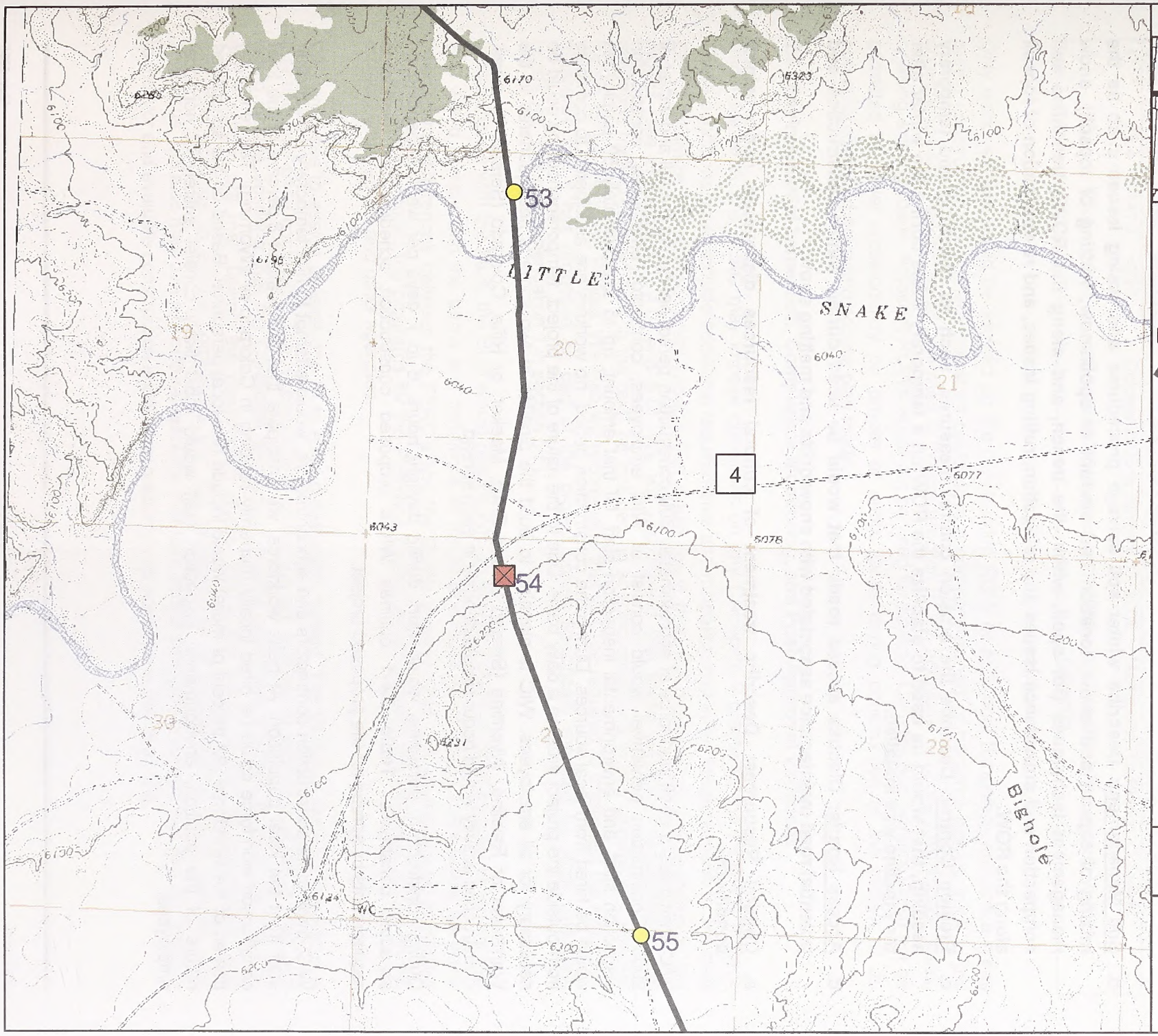
1000 0 1000 Feet

Piceance Project

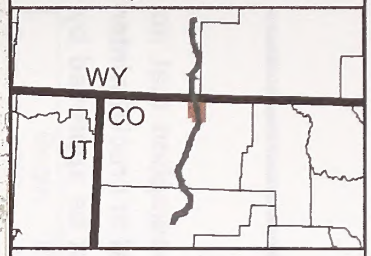
Figure 2.3-4

CIG Greasewood Compressor Station

4/4/05



Regional View



50 0 50 Miles

LEGEND

- Proposed Pipeline
- Proposed County Road 4 Pigging Facility and Mainline Valve #4
- Milepost

1000 0 1000 Feet

Piceance Project

Figure 2.3-5

County Road 4 Pigging Facility and Mainline Valve #4

3/2/05

a. **Big Game Habitat: Provide a winter construction schedule based on the assumption that no timing variance would be permitted by either the BLM or CDOW. Note: in critical or crucial winter range and parturition areas, construction during normal closure periods must be approved by appropriate state and federal land-management agencies in writing.**

b. **Soil Management: Describe winter soil salvage procedures addressing issues such as the mixing of topsoil and snow, location and amount of spoil/snow, wetting of topsoil), snow management techniques (for spoil, within the trench, and along the ROW), trenchline soil compaction and subsidence issues and mitigation, rutting issues, and re-application of topsoil along the ROW.**

c. **Erosion Control: Describe the erosion control measures, such as mulching and temporary seeding, that would be used to stabilize the ROW on a temporary basis during the winter after the pipeline was installed.**

d. **Access Roads: Discuss access roads that would be used during winter construction and potential road maintenance associated with snow drifts and melting snow.**

e. **Cultural Resources: Describe treatment of cultural resources discovered under winter conditions.**

WIC anticipates a peak workforce of approximately 600 construction personnel during the fall and winter of 2005. Construction personnel would consist of WIC employees, contractor employees, construction inspection staff, and environmental inspection staff. Of that amount, up to approximately 50 employees would be hired from local sources. During the construction period, no workers are anticipated to commute from outside the project area on a daily basis. Due to the nature of the project, temporary housing could be necessary for all employees. WIC is planning to build the pipeline in two spreads headquartered in the Wamsutter or Rawlins, Wyoming (Spread 2) and Craig, Meeker, or Rifle, Colorado (Spread 1), areas. Construction activity would occur simultaneously in each spread.

During construction, personnel would work during daylight hours, 6 to 7 days per week depending on schedule constraints. **Table 2.4-1** outlines WIC's proposed construction schedule and workforce requirements by spread for the proposed project.

WIC, through its construction contractors and subcontractors, would attempt to hire temporary construction staff from the local population. At peak workforce, we anticipate that up to about 8 percent of the total construction workforce could be hired locally (currently residing in Colorado or Wyoming). The remaining portion of the workforce (92 percent or more) would include non-local personnel. Based on the specialized nature of the position, environmental inspection staff would most likely consist entirely of non-local employees.

Table 2.4-1
Pipeline Construction Workforce and Proposed Schedule

Spread	Begin MP	End MP	Estimated Workforce	Proposed Schedule	County and State
1	75.4	141.7	<300	October 2005 to January 31, 2006	Moffat and Rio Blanco, Colorado
2	0	75.4	<300	October 2005 to January 31, 2006	Sweetwater, Wyoming and Moffat, Colorado

Only work vehicles would be allowed on the construction ROW or additional temporary workspace areas during construction. Equipment operators could drive a company-owned or personal pick-up truck to the construction site. Parking would be limited to the construction ROW, additional temporary workspace areas, or along existing roads. Adjacent ROWs would not be used for parking. Construction workers would not be permitted to travel cross-country on private or public lands during construction of the project or on non-authorized and permitted access plan roads.

2.5 Environmental Inspection, Compliance Monitoring, and Post-Approval Variances

Under the NGA, the FERC may impose conditions on any Certificate it grants for the Piceance Project. These conditions could include additional requirements and mitigation measures recommended in this draft EIS to minimize the environmental impacts that would result from the construction and operation of the project (see chapters 3.0, 4.0, and 5.0). We will recommend that these additional requirements and mitigation measures (bold type in the text) be included as specific conditions to any approving Certificate issued for the Piceance Project. We also will recommend that WIC be required to implement the mitigation measures that it has proposed as part of the project unless specifically modified by other Certificate conditions (see recommendation 1 in section 5.5).

In accordance with the MLA, the BLM would require WIC to furnish a bond or other security to ensure that WIC would comply with the terms and conditions of the BLM's ROW grant. While there would be some jurisdictional differences between the FERC's and the BLM's requirements, the environmental inspection and compliance monitoring programs for the Piceance Project would address requirements placed on the project by the federal and other agencies.

WIC proposes to assign at least one EI to each construction spread. The EI would likely be hired from a qualified third-party contractor. The responsibilities of the EIs are outlined in section II of WIC's Plan and would include ensuring that the Certificate and environmental conditions attached to other permits and authorizations are met. During the construction phase, WIC's EIs would inspect all construction and mitigation activities to ensure compliance with the requirements of environmental plans, permits, and conditions. EIs also may oversee cultural resource monitors and/or biological monitors that may be required to monitor and evaluate construction impacts on resources as specified in this draft EIS.

The lengths of WIC's construction spreads are about 65 miles on Spread 1 and 75 miles on Spread 2. We believe that more than two EIs would be necessary to adequately inspect all construction and mitigation activities and perform the other duties outlined above. Therefore, **we recommend that WIC employ a team of EIs (i.e., three or more) on each construction spread. The EIs should be:**

a. **responsible for monitoring and ensuring compliance with all mitigation measures required by a FERC Certificate and other grants, permits, certificates, or other authorizing documents;**

b. **responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract and any other authorizing document;**

c. **empowered to order correction of acts that violate the environmental conditions of any authorizing document;**

d. **a full-time position, separate from all other activity inspectors;**

e. **responsible for documenting compliance with any environmental conditions of a FERC Certificate, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and**

f. **responsible for maintaining status reports.**

Inspectors from the FERC and BLM also would conduct field inspections during construction. Other federal and state agencies also may oversee or monitor inspection to the extent determined necessary by the individual agency.

After construction is completed, the FERC and BLM would continue to conduct oversight inspection and monitoring. If it is determined that any of the proposed monitoring time frames are not adequate to assess the success of restoration, WIC would be required to extend its post-construction monitoring programs. The BLM would retain WIC's bond or other security until the BLM is satisfied with WIC's reclamation efforts.

2.5.1 Compliance Monitoring

The BLM has indicated that it intends to require a separate compliance monitoring program to evaluate WIC's environmental inspection program during construction and to ensure compliance with the terms and conditions of the BLM ROW grant. We believe that a joint third-party independent Environmental Compliance Monitoring and Reporting Program (ECMR Program) would provide a number of benefits, both to the agencies themselves and to WIC. The overall objective of an ECMR Program would be twofold: to assess environmental compliance during construction in order to achieve a high level of environmental compliance throughout the project and to assist the FERC and BLM staffs in screening and processing variance requests during construction.

The joint ECMR Program would involve the use of full-time third-party compliance monitors representing both agencies at each construction spread to monitor compliance with project mitigation measures and

The joint ECMR Program would involve the use of full-time third-party compliance monitors representing both agencies at each construction spread to monitor compliance with project mitigation measures and requirements throughout construction. These monitors would provide continuous feedback on compliance issues to both agencies, as well as to WIC's personnel. These monitors also would track and document progress of construction by the preparation and submittal of reports to the FERC and BLM staffs on a regular and timely basis.

2.5.2 Post-Approval Variance Process

Surface disturbance locations and acreages identified in this draft EIS are anticipated to be sufficient for the construction and operation (including maintenance) of the project and all ancillary improvements. However, route realignments and other project refinements often continue past the project review phase and into the construction phase. As a result, work area locations and disturbed acreages documented in the draft EIS may change after project approval. These changes frequently involve minor route realignments or moving approved temporary workspace, adding new temporary workspace, and adding access routes to work areas and associated temporary use areas. This section describes the procedure used for assessing impact on workspace areas outside those evaluated in this draft EIS and for approving their use.

Subsequent to project approval, when work areas outside those evaluated in this draft EIS are found to be needed, additional inventory and evaluation would be performed to ensure that impact on biological, cultural, and other resources would be avoided or minimized to the maximum extent practicable. New workspace location and survey results would be documented and forwarded to the FERC (and the BLM, as applicable) in the form of a "variance request"; one of the two federal agencies would take the lead on reviewing the request, depending on the ownership status of the subject land.[16] Appropriate agency consultations/approvals would be conducted/obtained prior to approval of the variance. At the conclusion of the project, as-built drawings would be provided to the FERC and BLM.

2.6 Operation and Maintenance

WIC would operate and maintain the project facilities in accordance with the DOT regulations in 49 CFR 192 and other applicable federal and state regulations. Operation and maintenance of the pipeline system would be accomplished by existing WIC personnel; there would be no additional staff required by WIC to maintain the facilities after construction. Operation of the pipeline would require access along the pipeline ROW by WIC personnel. While WIC would make an effort to notify landowners prior to entering private property, landowner notification is not required for entry along the ROW, particularly in emergency situations.

2.6.1 ROW Monitoring and Maintenance

In order to maintain accessibility of the ROW and to accommodate pipeline integrity surveys, vegetation along the pipeline ROW would be periodically cleared over the pipeline. In most areas, the ROW would be maintained in an herbaceous state (i.e., large trees would be removed from the permanent ROW). WIC would use only mechanical mowing or cutting along its ROW for normal vegetation maintenance.

[16] Recommendation 5 in section 5.5 illustrates our approach to considering variance requests subsequent to project authorization.

Noxious weeds and invasive plant monitoring and control activities would be conducted during routine ROW monitoring and maintenance activities. Noxious and invasive weeds discovered within the ROW would be controlled according to the measures specified in the Weed Plan (see appendix G).

In the future, pipeline integrity surveys and vegetation maintenance could identify areas on the ROW where permanent erosion control devices need to be repaired or additional erosion control devices may be needed. If problem areas were evident, erosion control devices would be repaired or installed as necessary and the ROW would be stabilized to prevent future degradation.

Active corrosion, leakage, encroachments, soil erosion, ground movements, missing or damaged markers, or other changes requiring attention would be reported and the required repairs made. Operation and maintenance of valves would be performed in accordance with DOT requirements. The Piceance Project would be remotely monitored by a Supervisory Control and Data Acquisition (SCADA) system. El Paso Gas Control would monitor the SCADA system 24 hours a day. Remote locations on the pipeline would be monitored via telecommunications (radios, phone lines, and/or satellite) systems.

In the vicinity of waterbodies, wetlands, and upland areas, WIC would adhere to the operation and maintenance procedures described in WIC's Plan and Procedures. WIC also has committed to adhere to the maintenance commitments made in its POD and associated appendices for the BLM (WIC 2004). Operation and maintenance procedures, including record keeping, would be performed in accordance with the DOT requirements.

2.6.2 Pipeline Integrity

WIC's pipeline facilities would be operated and maintained in accordance with the federal safety standards (49 CFR 192). Operation and maintenance of the Piceance Project facilities would be performed by or at the direction of WIC. The pipeline would be inspected periodically from the air and on foot as operating conditions permit, but no less frequently than as required by 49 CFR 192. These surveillance activities would provide information on possible encroachments and nearby construction activities, erosion, exposed pipe, and other potential concerns that may affect the safety and operation of the pipeline. Evidence of population changes would be monitored and class locations changed as necessary. WIC also would inspect mainline valves annually and document the results.

2.7 Future Plans and Abandonment

Greater volumes of natural gas could be transported between the CIG Greasewood and CIG Wamsutter Compressor Stations with the installation of a new compressor station. However, WIC has not presented plans to expand the system or increase its capacity at the present time. If, in WIC's judgment, future market demands warrant expansion of the Piceance Project, WIC would file an appropriate application with the FERC at that time and an appropriate NEPA analysis would be prepared to address the impacts of the project expansion.

Properly maintained, the proposed pipeline is expected to operate for 50 or more years. If and when WIC abandons any of the proposed facilities, the abandonment would be subject to separate approvals by the FERC, the BLM, and other land managing agencies. The FERC review would be conducted under Section 7(b) of the NGA. On federal lands, the BLM would require WIC to submit an abandonment plan at least 90 days prior to anticipated abandonment. WIC has no plans for abandonment of the pipeline system.

The FERC typically allows a buried pipeline that has reached the end of its service life to be internally cleaned, purged of natural gas, isolated from interconnections with other pipelines, and sealed without removing the pipe from underground. We believe that this approach generally minimizes surface disturbance and other potential environmental impact. The aboveground pipeline at compressor and metering stations would be completely removed, including all related aboveground equipment and foundations, and the station sites restored to as near original condition as possible. The disposition of pipeline facilities on federal lands would depend on decisions made in the abandonment plan discussed above.

Upon abandonment of the pipeline, in part or in whole, the ROWs associated with the abandoned facilities would normally be returned to the landowners/land management agencies according to the specific easement agreements between the landowners/land managing agencies. However, on federal lands, the pipeline ROW could be used for other utility ROW (e.g., fiber optic lines) depending upon future decisions made by the BLM.

2.8 Permits, Approvals, and Regulatory Requirements

As federal agencies, the FERC and the BLM are required to comply with a number of regulatory statues, including, but not limited to, the NEPA, the ESA, and the National Historic Preservation Act of 1966, as amended (NHPA). In addition, the BLM would review the proposed project and facilities and make a determination whether or not the project would conform with its own statutory requirements and regulatory frameworks. Because the BLM administers all federally owned lands crossed by the proposed pipeline, it has additional permitting requirements under other rules and regulations, such as the Federal Land Policy and Management Act, Archaeological Resources Protection Act, and/or Native American Graves Protection and Repatriation Act.

Federal, state, or local agencies that have permit, approval, or consultation authority for portions of the proposed project are identified in **table 2.8-1**. The Commission states in its orders that applicants should cooperate with state and local agencies. However, any state or local permits issued with respect to jurisdictional facilities must be consistent with the conditions of any Certificate the Commission may issue. Although the Commission encourages cooperation between interstate pipelines and local authorities, this does not mean that state and local agencies, through application of state and local laws, may prohibit or unreasonably delay the construction or operation of facilities approved by the Commission.

Section 7 of the ESA, as amended, states that any project authorized, funded, or conducted by any federal agencies (e.g., the Commission) should not "...jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined...to be critical..." [16 USC § 1536(a)(2)(1988)]. The Commission, or the applicant as a

non-federal representative, is required to consult with the FWS to determine whether any federally listed or proposed endangered or threatened species or their designated Critical Habitat occur in the vicinity of the proposed project. If, upon review of existing data, the Commission determines that these species or habitats may be affected by the proposed project, the Commission is required to prepare a Biological Assessment (BA) to identify the nature and extent of potential impact, and to recommend mitigation measures that would avoid the habitat and/or species or that would reduce potential impact to acceptable levels. We are requesting that the FWS consider this draft EIS as our BA for the proposed project. The FWS will review this document and issue a Biological Opinion if the project is likely to adversely affect a listed species or adversely modify Critical Habitat designated for a listed species. See section 3.6 of this draft EIS for a detailed discussion of threatened and endangered species.

The BLM would prepare a ROD to authorize an additional pipeline within new or existing corridors through BLM-administered lands in Colorado and Wyoming. As discussed above, the BLM would adopt this draft EIS per 40 Federal Register (FR) 1506.3 to meet its responsibilities under NEPA in considering WIC's application for a ROW grant. Under Section 28 of the MLA, the BLM has the authority to issue the ROW grant for all affected federal lands.

Section 106 of the NHPA, as amended, requires the FERC to take into account the effects of its undertakings on historic properties and afford the Advisory Council on Historic Preservation (ACHP) an opportunity to comment. Historic properties are prehistoric or historic districts, sites, buildings, structures, objects, or properties of traditional religious or cultural importance, which are listed or eligible for listing on the National Register of Historic Places (NRHP). The Commission is using the services of WIC, as an applicant, to prepare information, analyses, and recommendations necessary to comply with Section 106, according to the ACHP's regulations at 36 CFR 800.

WIC must comply with Sections 401, 402, and 404 of the CWA. Water quality certification (Section 401) has been delegated to the jurisdiction of individual state agencies, with review by the U.S. Environmental Protection Agency (EPA). Water used for hydrostatic testing that is point-source discharged into waterbodies would require a NPDES permit issued by the state with EPA oversight.

The COE has responsibility for determining compliance with all regulatory requirements associated with Section 404 of the CWA, which includes compliance review and approval by the states and EPA with respect to Section 401. WIC submitted its Section 404 permit applications to the appropriate COE District Offices in 2005. Authorization to commence activities under Nationwide Permit 12 was granted by the COE in February 2005.

Ambient air quality is protected by federal regulations under the Clean Air Act (CAA). These regulations include compliance under the New Source Performance Standards (NSPS) and the requirements for the Prevention of Significant Deterioration (PSD). The federal permitting process for the CAA has been delegated to individual state agencies. Although applications are reviewed by both Colorado and the EPA, Colorado would determine the need for NSPS or a PSD permit.

Table 2.8-1
Major Permits, Approvals, and Consultations for the WIC Piceance Project

Agency	Permit or Consultation/Authority	Agency Action
FEDERAL		
Advisory Council on Historic Preservation (ACHP)	Section 106, National Historic Preservation Act (NHPA)	Provide comments on the proposed undertaking, as necessary.
Federal Energy Regulatory Commission (FERC)	Certificate of Public Convenience and Necessity (Natural Gas Act [NGA])	Determine whether the construction and operation of the proposed project is in the public interest. Consider issuance of a Certificate.
U.S. Department of Defense		
Corps of Engineers (COE) - Sacramento and Omaha Districts	Section 404, Clean Water Act (CWA) Individual Permit (Stream and Wetland Crossings)	Consider issuance of Section 404 individual permits for the placement of dredge or fill material in waters of the U.S., including wetlands.
	Section 404, CWA Nationwide Permit	Consider issuance of Section 404 nationwide permits, as applicable.
U.S. Department of Interior		
Bureau of Land Management (BLM)	Archaeological Resources Protection Act Permit	Consider issuance of cultural resource use permit to excavate or remove cultural resources on federal lands.
	Paleontological Resources Use Permit	Consider issuance of paleontological permit to excavate or remove significant paleontological resources on public lands.
	ROW Grant and Temporary Use Permit under Section 28 (Mineral Leasing Act [MLA])	Consider approval of ROW grant and temporary use permits for the portions of the project that would encroach on federal lands.
	Plan of Development (POD)	Consider approval of WIC's detailed plan for construction, operation, and maintenance.
	Notice to Proceed	Following issuance of a ROW grant and approval of WIC's POD, consider the issuance of a Notice to Proceed with project development and mitigation activities.
Fish and Wildlife Service (FWS)	Endangered Species Act (ESA), Section 7 Consultation, Biological Opinion	Consider lead agency finding of an impact on federally listed or proposed species. Provide Biological Opinion if the project is likely to adversely affect federally listed species or their habitats.
	Migratory Bird Treaty Act of 1918	Provide guidance to protect migratory birds from deleterious acts.
	Fish and Wildlife Coordination Act	Provide comments to prevent the loss of and damage to wildlife resources.

Table 2.8-1 (Continued)

Agency	Permit or Consultation/Authority	Agency Action
U.S. Department of Transportation (DOT)		
Federal Highway Administration	Encroachment Permit	Consider issuance of permits for the crossing of federally funded highways.
U.S. Department of Treasury		
Bureau of Alcohol, Tobacco, and Firearms	Explosive User's Permit	Consider issuance of a permit to purchase, store, and use explosives for site preparation during pipeline construction.
U.S. Environmental Protection Agency (EPA), Region VIII	Section 401, CWA, Water Quality Certification	In conjunction with states, consider the issuance of water use and crossing permits.
	Section 402, CWA, National Pollutant Discharge Elimination System (NPDES)	In conjunction with states, review and issue NPDES permit for the discharge of hydrostatic test water.
	Section 404, CWA	Review CWA, Section 404 applications for wetlands dredge-and-fill applications for the COE with 404 veto power for wetland permits issued by the COE.
	Stormwater Discharge Permit	In conjunction with states, review and issue stormwater permit for activities associated with pipeline and aboveground facilities construction.
COLORADO		
Colorado Historical Society	Consultation under Section 106, NHPA	Review and comment on activities potentially affecting cultural resources.
Department of Natural Resources		
Division of Water Resources	Section 401, CWA, Water Quality Certification	Consider issuance of a permit for stream and wetland crossings.
	NPDES Temporary Discharge Permit	Consider issuance of a permit regulating hydrostatic test water discharge, and construction dewatering to waters of the state.
	NPDES Stormwater Discharge Permit	Consider the issuance of a permit regulating discharge of stormwater from the construction work area.
Division of Wildlife	Consultation	Review and comment on activities potentially affecting wildlife, particularly state-listed species and potential impacts to state lands.
Department of Public Health and Environment		
Air Quality Control Division	Permit to construct	Consider issuance of a permit to construct facilities with the potential for air emissions.

Table 2.8-1 (Continued)

Agency	Permit or Consultation/Authority	Agency Action
	Permit to operate	Consider issuance of a permit to operate facilities with the potential for air emissions.
Department of Transportation	Encroachment Permits	Consider issuance of permits for encroachment on state highways.
Board of Land Commissioners	ROW Permit	Consider issuance of a permit to construct pipeline facilities on state lands.
County Road Departments	Encroachment Permits	Consider issuance of permits for encroachment on county roads.
WYOMING		
Department of Environmental Quality		
Water Quality Division	Section 401, CWA, Water Quality Certification	Consider issuance of a permit for stream and wetland crossings.
	NPDES Temporary Discharge Permit	Consider issuance of a permit regulating hydrostatic test water discharge, and construction dewatering to waters of the state.
	NPDES Stormwater Discharge Permit	Consider issuance of a permit regulating discharge of stormwater from the construction work area.
Department of Transportation	Encroachment permits	Consider issuance of permits for encroachment on state highways.
Game and Fish Department	Consultation	Review and comment on activities potentially affecting wildlife, particularly state-listed species and potential impacts to state lands.
State Historic Preservation Office	Consultation under Section 106, NHPA	Review and comment on activities potentially affecting cultural resources.
County Road Departments	Encroachment Permits	Consider issuance of permits for encroachment on county roads.

ENVIRONMENTAL ANALYSIS

CHAPTER 3

3.0 ENVIRONMENTAL ANALYSIS

3.1 Geology

3.1.1 Geology and Physiography

The proposed Piceance Project route would cross parts of three major physiographic provinces: the Wyoming Basin, Southern Rocky Mountain, and the Colorado Plateau (Howard and Williams 1972). The Wyoming Basin Province generally consists of mountain ranges separated by broad basins. The pipeline route crosses a section of the Wyoming Basin known as the greater Green River Basin. The portion of the Southern Rocky Mountains Province that is crossed is an area of moderate relief called the Danforth Hills, but the route mainly crosses alluvial areas. The Colorado Plateau Province is characterized by mesas and plateaus and the southern portion of the pipeline route is located in the Piceance Basin. **Table 3.1-1** summarizes by MP the physiographic provinces and geology along the proposed pipeline route.

Construction of the proposed project facilities would not materially alter the geologic and physiographic conditions or worsen existing unfavorable geologic conditions in the area. Construction effects would include disturbances to the natural topography along the ROW and aboveground facilities due to grading and trenching activities. Upon completion of construction, WIC would restore topographic contours and drainage patterns as closely as possible to their pre-construction condition. Operation of the pipeline and its associated facilities would not affect the geologic and physiographic conditions in the project area.

3.1.2 Mineral Resources

Potentially Exploitable Resources

In Colorado, the route crosses areas containing sedimentary rock strata that are productive of oil and gas. The Sand Wash and Piceance Basins primarily produce natural gas from Tertiary and Cretaceous rocks. The route crosses or is in the vicinity of several oil and gas fields including Piceance Creek, Danforth Hills, Big Hole, and Big Hole North (Wray 2002). Most of the route is underlain by strata that are potentially productive of oil and gas. These areas may be potentially capable of producing coal bed methane (EPA 2002). From MP 135.3 to MP 141.7, the proposed project lies within an area of known oil shale-bearing strata of the Green River Formation in the Piceance Basin (Tweto 1979). The proposed project also crosses potential coal-bearing formations located in the Danforth Coal Field (Tremain et al. 1996). The Danforth Coal Field is located in the extreme northeast Piceance Basin and contains coal resources in upper Cretaceous rocks that are potentially mineable from surface or underground mines.

In Wyoming, the pipeline route crosses areas that are entirely underlain by strata that are potentially productive of oil and gas. Oil and gas are produced from Tertiary and upper Cretaceous rocks. South of Wamsutter to just north of the Wyoming-Colorado state line, the proposed route crosses known oil shale bearing strata of the Green River Formation in the Washakie Basin. The proposed route crosses Tertiary and upper Cretaceous coal bearing formations of the Green River Coal Field that are potentially mineable (Glass et al. 1980; Jones 1991).

Table 3.1-1
Physiographic Provinces and Geologic Conditions Along the Proposed Pipeline Route

Physiographic Province	Geologic Feature	MP Range	Geology	Topography/Elevation
WYOMING				
Wyoming Basin	Wamsutter Arch-Washkie Basin	0.0 to 51.9	Alluvial, colluvial Quaternary deposits along drainages. Tertiary oil shales and marlstones, claystone, sandstone, and conglomerate bedrock.	Approximately 6,260 feet to 7,100 feet above mean sea level (msl). Low to moderate relief.
COLORADO				
Wyoming Basin	Sand Wash Basin	51.9 to 87.6	Alluvial, colluvial, and mud flow Quaternary deposits along drainages. Tertiary and Cretaceous claystone, shale, siltstone, and sandstone bedrock.	Approximately 5,900 feet to 6,900 feet above msl. Moderate to low relief.
Southern Rocky Mountains	Axial Basin Uplift	87.6 to 127.8	Tertiary and Cretaceous siltstone and sandstone bedrock with Quaternary alluvium along drainages.	Approximately 5,900 feet to 7,000 feet above msl. Variable low to moderate relief.
Colorado Plateau	Piceance Basin	127.6 to 141.7	Alluvial, colluvial, and mud flow Quaternary deposits along drainages. Tertiary and Cretaceous claystone, shale, siltstone, and sandstone bedrock.	Approximately 6,000 feet to 7,460 feet above msl. Low to moderate relief along pipeline route.

Source: Howard and Williams (1972); Love and Christiansen (1985); Tweto (1979).

Typically, the pipeline trench would be about 6 to 7 feet deep to account for the pipe and adequate cover. Limited blasting could be required in areas where competent shallow bedrock or boulders were encountered that could not be removed by conventional excavation. Additional discussion of blasting impacts is presented in section 3.3.1, Groundwater.

None of the oil and gas wells identified would be located within the proposed pipeline construction ROW. However, blasting operations could potentially damage nearby oil and gas wells, and trenching could encounter underground gathering pipelines associated with the wells. Because oil and gas is generally produced from depths of more than 1,000 feet, construction of the pipeline would not be expected to affect the ability of the wells to produce oil and/or natural gas. Rather, any construction-related damage that could occur would be limited to surface or near-surface components of the wells and gathering systems, which could temporarily disrupt production until repairs were made. Potential affects of blasting on nearby wells would be mitigated by implementing the project-specific Blasting Plan (WIC 2005b) as well as additional mitigation measures identified in section 3.3.1. Prior to construction, WIC would identify any associated underground gathering lines in the project construction ROW and would either avoid piping, or construct in a manor to protect the integrity of such facilities. Consequently, impacts from construction activities would not be significant.

Mining and Mineral Resource Operations

In places where the route would follow drainages in both Colorado and Wyoming, the surface materials (alluvium, colluvium, and fan deposits) are potentially mineable for industrial minerals, such as sand and gravel (Harris 1996).

Mining and mineral recovery operations within 1,500 feet of the proposed project were identified using aerial photography, U.S. Geological Survey (USGS) topographic maps, information on mineral operations from the National Atlas of the United States (U.S. Department of the Interior 2002), state mineral publications, and the USGS Minerals Yearbook (USGS 2003). Two active gas field well pads (MP 11.2 and MP 64.9) were identified within 1,500 feet of the proposed route.

Potential impacts to surface mining operations, would be limited to temporary short-term encumbrances during construction and would be minimized by WIC working with the owners and/or operators of these mining operations during ROW negotiations and facilities construction to minimize conflicts where mineral resources could be affected. Because construction of the pipeline would be limited to near-surface disturbance, the proposed project would not impact oil and gas production in the area or other underground resource recovery operations, such as coal.

Operation of the proposed pipeline and aboveground facilities would not have a significant added impact on current or future mineral recovery operations in the area because most of the proposed pipeline route would follow existing ROWs that have already precluded mineral development along the route. Additionally, impacts on future mineral development would not constitute a significant loss of mineral resource or mineral availability because of the narrow, linear nature of the pipeline ROW relative to the expanse of areas with mineral resource potential.

It is anticipated that the pipeline would be backfilled with materials derived from the trench excavation, and it might be necessary to obtain some construction sand and gravel from local, existing commercial sources for use as backfill, road base, or surface facility pads. These demands for sand and gravel would not substantially affect the long-term availability of construction materials in the area.

3.1.3 Geologic Hazards

Geologic hazards are natural physical conditions that, when active, can result in damage to the land and structures, or injury to people. Geologic hazards that exist in the proposed project area consist of seismic related hazards (i.e., earthquakes, ground rupture, soil liquefaction), landslide, subsidence, flooding/scour, and avalanche. The conditions necessary for the occurrence of other geologic hazards, such as karst features and volcanism, are not present in the project area. The potential for geologic hazards to affect pipeline facilities is characterized as low to moderate.

Seismic Hazards

No active faults are crossed by the proposed route in either Colorado or Wyoming (Case et al. 2002; Colorado Office of Emergency Management 1999). An active fault is defined as a fault that movement has occurred within the last 10,000 to 11,000 years before present (Hart and Bryant 1997). A potentially active fault is a fault that has had surface movement within the last 1.6 million years (Quaternary time).

Secondary seismic effects (liquefaction, lateral spreading, flow failure) are often more damaging than shaking or surface faulting. Soil liquefaction is a phenomenon that occurs when saturated, cohesionless soils are subjected to strong and prolonged shaking from seismic events. Liquefaction can lead to loss of load bearing strength and can result in lateral spreading, flow failures, and flotation of buried pipelines. Lateral spreading and flow failure involve the horizontal movement of competent surficial soils due to the liquefaction of an underlying deposit. These events can pose a potential hazard to pipeline integrity since they can shift large amounts of material that could bend and weaken a pipeline along slopes. Lateral spreading normally develops on very gentle slopes and involves displacements ranging from 3 to 6 feet, while flow failures generally occur in saturated, loose sands with ground slopes ranging between 10 and 20 degrees.

For soil liquefaction and the related effects of lateral spreading or flow failure to occur, a relatively shallow water table, rapid, strong ground motions, and susceptible soils all must be present.

Since the potential for strong ground-shaking to occur along the proposed pipeline route in Colorado and Wyoming is categorized as low (peak acceleration less than 10 percent of gravity with a 10 percent probability of exceedence in 50 years), the potential for soil liquefaction and related effects to develop also is considered to be low (USGS 2002).

During the operating life of the project, the predicted level of ground shaking that might occur would not be expected to affect the pipeline or surface facilities. In the project area, the potential for surface faulting and associated soil liquefaction and shaking-induced flow failures to occur is low. To protect the pipeline and facilities from seismic activity and its associated hazards, project facilities would be constructed and tested

to meet federal standards outlined in 49 CFR Part 192 and geotechnical studies would be conducted so that facilities would be designed and constructed to minimize any effects that shaking or faulting could have on the project facilities.

Landslides

Landslides refer to the downward and outward movement of slope-forming materials reacting under the force of gravity. **Table 3.1-2** identifies areas where the potential for landslides along the proposed pipeline route may exist. Although portions of the route in the Wyoming Basin Province are moderately susceptible to landslides, no area of high landslide susceptibility was identified for the proposed route. No landslides were identified along the proposed route in Wyoming (Wyoming Geological Survey, Undated). The Piceance Basin portion of the route is in an area of high landslide susceptibility, but, again, no landslides were identified along the proposed route (Radbruch-Hall et al. 1982)

WIC's proposed route generally would follow existing pipeline ROWs. By following existing or previously studied corridors, many of potential slope instability hazards would be avoided.

The Piceance Project would parallel CIG's existing Uinta Basin Lateral along many segments in western Colorado and southwestern Wyoming. Implementation of WIC's Plan and Procedures (appendices B and C) and the project-specific Blasting Plan (WIC 2005b) would reduce the potential for construction-related activities to trigger landslides or other slope failures. Additional measures to reduce potential for ground failure would include the implementation of erosion control measures as described in WIC's Plan. At a minimum, these measures would include the construction of trench breakers, permanent slope breakers, and establishment of permanent vegetation within the ROW.

Subsidence

Subsidence, the loss of surface elevation due to removal of subsurface support, is one of the most diverse forms of ground failure, ranging from small or local collapses to broad regional lowering of the earth's surface. Causes of subsidence can include dissolution in limestone aquifers (karst topography), past and present underground mining, and withdrawal of fluids (groundwater, petroleum, geothermal).

The greatest risk for collapse or subsidence in the project area is from underground mining operations. In Colorado, the most common form of subsidence occurs over abandoned underground coal and clay mines. No areas along the proposed pipeline route in Colorado were identified to have the potential for subsidence resulting from underground mining activities. Further, the proposed project would not cross directly over any known active or abandoned underground mines. WIC has not experienced problems with mining-induced subsidence along the Uinta Basin Lateral pipeline along adjacent segments.

Similarly, the most common form of subsidence in Wyoming is associated with abandoned underground coal and clay mines. WIC found no evidence of either abandoned underground mines or subsidence directly underlying the route. In Wyoming, the proposed Piceance Project route generally follows existing pipelines, which would reduce the likelihood of encountering previously unknown areas of subsidence.

Table 3.1-2
Potential Geologic Hazards Along the Proposed Pipeline Route

Physiographic Province	Geologic Structural Basin	Approximate MP(s)	Potential Geologic Hazard
WYOMING			
Wyoming Basin	Wamsutter Arch	MPs 0.0 – 4.3	Low landslide susceptibility and low liquefaction susceptibility.
		MP 3.6	Alluvial floodplains and alluvial fans are subject to flooding and scour. Internal drainage basins are subject to flash flooding during storm events.
	Washakie Basin	MPs 4.3 – 51.9	Low landslide susceptibility and low liquefaction susceptibility.
		MPs 27.7 – 27.8, 41.6 – 41.8	Alluvial floodplains and alluvial fans are subject to flooding and scour.
COLORADO			
Wyoming Basin	Sand Wash Basin	MPs 51.9 – 86.0	Moderate to low landslide susceptibility and low liquefaction susceptibility.
		MPs 53.0 – 53.4, 76.0, 77.5, 84.0	Alluvial floodplains and alluvial fans are subject to flooding and scour.
Southern Rocky Mountains	Axial Uplift Basin	MPs 86.0 – 127.6	Moderate to low landslide susceptibility and low liquefaction susceptibility.
		MPs 87.6 – 87.9, 106.5	Alluvial floodplains and alluvial fans are subject to flooding and scour. Floodplains adjacent to high-angle slopes are especially susceptible to debris flows.
		MPs 127.6 – 141.7	Moderate to low landslide susceptibility and low liquefaction susceptibility.
Colorado Plateau	Piceance Basin	MPs 127.6 – 127.8, 135.0	Alluvial floodplains and alluvial fans are subject to flooding and scour. Floodplains adjacent to high-angle slopes are especially susceptible to debris flows or land slides.

Flooding

In general, seasonal flooding hazards exist where the proposed pipeline route would cross major streams and rivers, and flash flooding hazards exist where the pipeline would cross localized drainages. The proposed pipeline route would cross 4 perennial and 90 intermittent waterbodies in Colorado and 0 perennial and 89 intermittent waterbodies in Wyoming, all of which are locations where seasonal or flash flooding could occur. **Table 3.1-2** indicates areas where the proposed pipeline route would cross alluvial floodplains and alluvial fans, which are areas with an elevated risk for flood-related debris flows and scouring to occur. Though flooding in and of itself does not represent a significant risk to buried pipelines, stream scour and mud/debris flows that can accompany flooding can impact pipelines by exposing and leaving unsupported spans of pipe. To minimize these effects, the pipeline would be buried at a sufficient depth to avoid possible scour at waterbody crossings.

We are concerned about the potential for streambed scour on the White, Yampa, and Little Snake Rivers, since these rivers can experience very large spring runoff events. WIC would cross the White, Yampa, and Little Snake Rivers by HDD, placing the pipeline well below scour depth.

Flooding also could damage the project's aboveground facilities by inundating surface facilities, scouring streambeds at the point of the pipeline crossing, or causing debris flows that could damage surface facilities. The CIG Greasewood Compressor Station site, metering and pigging facilities, and MLVs are located within areas susceptible to flooding.

Due to the routing of the pipeline and its design, we conclude that it is unlikely that the pipeline facilities would suffer significant damage from geologic hazards or other naturally occurring events during operation. Further, construction and operation of the project and facilities would not worsen unfavorable geologic conditions in the area.

3.1.4 Paleontological Resources

A paleontological study of existing data was conducted to identify geological units and known fossil localities crossed by the proposed pipeline route. The study identified 13 formal geological formations ranging in age from the Cretaceous to the Pliocene along the proposed pipeline route, many of which are known to contain scattered vertebrate fossil localities and abundant plant and invertebrate fossil sites in the vicinity of the proposed project (Uinta Paleontological Associates Inc. 2004). The study also identified three informal Quaternary units. The sensitivity of each unit for containing fossil material subsequently was evaluated using a three-tiered classification system established by the BLM (BLM Paleontology Resources Management Manual 8270 and Handbook H-8270-1). Under this system, units are ranked according to their potential for noteworthy fossil occurrences as follows:

- Condition 1 – Areas that are known to contain vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils.

- Condition 2 – Areas with exposures of geological units or settings that have high potential to contain vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils.

- Condition 3 – Areas that are very unlikely to produce vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils based on their surficial geology, igneous or metamorphic rocks, extremely young alluvium, colluvium, or aeolian deposits, or the presence of deep soils.

Applying these criteria, approximately 114.8 miles of the proposed pipeline route (81 percent) were classified as Condition 1 areas, 4.6 miles of Condition 1 to 2 (3.2 percent), 21.6 miles as Condition 2 areas (15 percent), and 0.7 miles as Condition 3 areas (less than 1 percent) (**table 3.1-3**). In addition, the study identified 31 known fossil localities within 1 mile of the proposed pipeline ROW.

WIC conducted a paleontological field survey in autumn and early winter of 2004 to identify fossil localities that could be impacted by pipeline construction. The survey covered a 250- to 300-foot-wide corridor along the length of the fossiliferous strata of the proposed pipeline route, unless the grade was considered too steep, the surface exposures were too well vegetated, or there was substantial alluvial or soil cover. Along segments of the proposed route that parallel an existing pipeline, the edge of the 250- to 300-foot-wide corridor was located 50 feet from the proposed centerline on the side with the existing pipeline and 200 to 250 feet from the centerline on the other side. Where the proposed pipeline would not parallel an existing pipeline, a 300-foot-wide survey corridor centered on the staked centerline of the pipeline route was examined.

The field survey consisted of intensive field reconnaissance of Condition 1 units with exposed bedrock and/or good surface visibility, and spot checking of Condition 2 units with exposed bedrock and/or good surface visibility. Condition 1 and 2 units covered by recent Quaternary deposits or heavy vegetation and Condition 3 units were not examined. Survey coverage included the majority of the proposed pipeline corridor as well as aboveground facilities, extra temporary workspaces, and access roads. No field surveys were conducted from MP 97.0 to MP 141.7 due to heavy vegetation or snow cover. WIC stated that it would complete surveys along this segment of the pipeline route prior to construction.

The field survey identified 38 occurrences of fossils in Colorado grouped into 16 localities (plus 7 localities within 1.2 miles of the corridor), and 218 occurrences of fossils in Wyoming grouped into 43 localities. The localities contained the fossil remains of plants, vertebrates, and invertebrates.

Potential impacts to fossil localities during construction could be both direct and indirect. Trenching through significant fossil beds could result in direct damage to or destruction of fossils. Indirect effects during construction could include erosion of fossil beds due to slope regrading and vegetation clearing. Another possible indirect effect could be unauthorized collection of significant fossils by construction workers or the public due to increased access to fossil localities along the ROW.

To manage impacts to fossil localities, WIC has prepared and would implement a Monitoring and Mitigation Plan to protect fossil resources that may be encountered during project construction, including the resources

Table 3.1-3
Total Miles of Fossil Occurrence Potential Condition 1, 2, and 3 Areas Along the Piceance Project Pipeline Route

Formation	BLM Rating	Total Miles	Recommendations
Aeolian deposits	Condition 3	0.7 mile	No Monitoring
Alluvial sediments	Condition 2	14.6 miles	Spot check near rivers
Playa lacustrine deposits	Condition 2	1.3 miles	No Monitoring
Terrace deposits	Condition 2	2.0 miles	Spot check near rivers
Browns Park Formation	Condition 1	8.1 miles	Spot check during construction
Uinta Formation or intertonguing Uinta/Green River formations	Condition 1	8.3 miles	Monitor during construction
Washakie Formation	Condition 1	Less than 1 mile	Monitor if bedrock is impacted
Green River Formation – Parachute Creek Member	Condition 1	2.4 miles	Monitor during construction
Green River Formation – Laney or lower Member	Condition 1	26.7 miles	Mitigate or avoid crocodile and Palaeosyops sites; monitor during construction
Green River Formation – Wilkins Peak Member	Condition 1	0.3 mile	Monitor during construction
Green River Formation – Tipton Shale Member	Condition 1	6.0 miles	Monitor during construction
Green River Formation – Luman Member	Condition 1	0.4 mile	Monitor during construction
Wasatch Formation aka DeBeque Formation in NE Colorado, Atwell Gulch Member, Molina Member, Shire Member	Condition 1	16.1 miles	Monitor during construction
Wasatch Formation (main body – Red Desert tongue and Hiawatha Member) (Cathedral Bluffs Member)	Condition 1	46.5 miles	Monitor during construction
Fort Union Formation	Condition 2	1.6 miles	Monitor during construction
Ohio Creek Formation	Condition 2	0.4 mile	Not on primary route
Lance Formation	Condition 2	0.2 mile	Monitor during construction
Lewis Shale	Condition 2	0.2 mile	Spot check during construction
Mesaverde Group (CO) – including Williams Fork and Iles formations	Condition 1 to 2	4.6 miles	Monitor during construction
Mancos Formation	Condition 2	1.3 miles	Monitor when bedrock is impacted

Source: Uinta Paleontological Associates Inc. 2004.

identified during the field survey (Uinta Paleontological Associates Inc. 2004). Primary elements of the Monitoring and Mitigation Plan include:

- paleontological monitoring of construction activities across all Condition 1 units (including units examined during the field survey);
- spot checking of construction activities across all Condition 2 units (including units examined during the field survey);
- mitigation procedures for fossil localities identified during construction (e.g., avoidance, excavation, recording of localities);
- provisions for the preparation and curation of fossil collections; and
- provisions for the preparation of a final report based on the recovered data.

All work conducted under the Monitoring and Mitigation Plan would be performed by qualified paleontologists with trained assistants. The plan would be filed with the Secretary prior to construction.

Implementation of the Monitoring and Mitigation Plan would reduce impacts on paleontological resources to less than significant levels during construction.

Normal operation of the proposed pipeline and its associated facilities would not impact important paleontological resources. Maintenance activities would result in surface disturbance, but typically would occur within the trenchline previously disturbed during construction. Since no new disturbances would be anticipated from maintenance activities (i.e., maintenance activities would occur within the WIC ROW), impacts to paleontological resources would be negligible. If any maintenance activities occur that widen the trench, impacts may occur.

3.2 Soils and Noxious and Invasive Weeds

Soils characteristics that can affect construction or increase the potential for soil impacts include: highly erodible soils; prime farmland; hydric soils; compaction-prone soils; presence of stones and shallow bedrock; droughty soils; depth of topsoil; and percent slope. Additional soil-related issues include revegetation potential, soil salinity, and soil contamination. **Tables 3.2-1** and **3.2-2** summarize characteristics of soils that would be crossed by the pipeline route.

Overall, the potential for site restoration and revegetation success is limited throughout the project region by climate, geology, and topography. Low annual precipitation is a major limiting factor for plant establishment. Brief, high-energy thunderstorms generate splash erosion and concentrated runoff. Sandy or clayey soil parent materials lie relatively close to the surface, and frequently exhibit saline/alkaline conditions. These factors combine to generate relatively thin, erodible topsoils that overlie substrates with elevated salt levels. Approximately 68 percent of the soils along the proposed ROW have topsoil layers 12 inches thick or less (**table 3.2-2**).

Table 3.2-1
Acreage Summary of Sensitive Soils

State/ County	Total Acres[1]	Highly Erodible		Prime Farmland Suitability[4]	Hydric[5]	Compaction Prone[6]	Stony – Rocky[7]	Shallow Bedrock[8]	Droughty[9]
		Water[2]	Wind[3]						
WYOMING									
Sweetwater	673	187	0	0	0	0	0	452	345
COLORADO									
Moffat	750	21	242	97	17	0	83	18	466
Rio Blanco	428	44	0	26	2	0	139	161	31
Project Total[10,11]	**1,851**	**252**	**242**	**123**	**19**	**0**	**214**	**632**	**842**

1 Acreage assumes a 85-foot-wide construction ROW, except in wetlands where a 75-foot-wide construction ROW would be used and includes additional temporary workspace. Individual soils may occur in more than one characteristic class, therefore totals may not be consistent across rows.
2 Includes land in capability subclasses 4E through 8E and soils with slopes greater than or equal to 9 percent.
3 Includes soils in wind erodibility groups 1 and 2.
4 Includes land listed by the NRCS (1995) as potential prime farmland if adequate drainage and adequate protection from flooding are provided.
5 As designated by the NRCS (1995).
6 Includes soils that have clay loam or finer textures in somewhat poor, poor, and very poor drainage classes.
7 Includes soils that have either: 1) a cobbly, stony, bouldery, gravelly, or shaly modifier to the textural class, or 2) have >5 percent (weight basis) of stones larger than 3 inches in the surface layer.
8 Shallow bedrock locations (within 5 feet of the surface) were determined using the State Soil Geographic (STATSGO) database (NRCS 1995). MPs represent areas where 15 percent or more of the map unit comprises shallow to bedrock soils.
9 Includes coarse-textured soils (sandy loams and coarser) that are moderately well to excessively drained.
10 Discrepencies in acreages are due to rounding.
11 Total does not include 19.7 acres in Colorado and 38.3 acres in Wyoming of land to be used for pipe storage and contractor yards, as no soil data were available.

Table 3.2-2
Acreage Breakdown of Topsoil Depth and Average Slope Class Along the Piceance Project Pipeline Route

State/ County	Total Acres[1]	Topsoil Depth[2] (inches)					Slope Class[3] (percent)				
		0 - 6	>6 - 12	>12 - 18	>18 - 24	>24	0-5	>5-8	>8-15	>15-30	>30
WYOMING											
Sweetwater	673	481	192	0	0	0	673	0	0	0	0
COLORADO											
Moffat	750	12	424	202	1	111	87	383	112	147	20
Rio Blanco	428	17	143	140	2	127	69	74	80	196	11
Project Total[4, 5]	**1,851**	**510**	**759**	**342**	**3**	**238**	**829**	**457**	**192**	**343**	**31**

1 Acreage assumes a 85-foot-wide construction ROW, except in wetlands where a 75-foot-wide construction ROW would be used, and includes additional temporary workspace areas.
2 Topsoil includes A-horizons (layers 1, 11, and 12) listed in the STATSGO layer table.
3 Slopes are grouped by the averages of the high and low slope ranges provided in the STATSGO database for each Mapping Unit Identification (MUID) component soil series. For example, Tresano series, 3 to 10 percent slopes, is 20 percent of MUID CO010. Its average slope is 6.5 percent. The representative acreage, calculated by multiplying percent composition by the total MUID acreage, is included in the >5 to 8 percent slope class.
4 Discrepancies are due to rounding.
5 Total does not include 19.7 acres in Colorado and 38.8 acres in Wyoming of land to be used for pipe storage and contractor yards, as no soil data were available.

About 45 percent (829 acres) of the soils along the proposed ROW have average slopes in the 0 to 5 percent category (**table 3.2-2**). Successful site stabilization and revegetation are more difficult on steeper slopes common to the region. About 54 percent (992 acres) of the soils are generally within the 5 to 30 percent slope range. About 2 percent of the soils along the proposed ROW have average slopes greater than 30 percent (31 acres).

Pipeline construction activities that have the potential to adversely affect soils and revegetation potential include: clearing and grading along the ROW, trenching, backfilling, and restoration. Potential soil impacts include: loss of soil due to water or wind erosion, especially on steep slopes or fine sandy soils; reduction of soil quality by mixing topsoil with subsoil or by bringing excess rocks to the surface; soil compaction due to traffic by heavy equipment; introduction of noxious weeds or invasive plant species; and disruption of surface and subsurface drainage or irrigation systems.

The Piceance Project would include construction and operation of aboveground facilities, including nine MLVs, three pigging facilities, and four metering stations (**table 2.1.1**). These aboveground facilities would be located within existing compressor station sites with the exception of seven of the nine MLVs and a pigging facility at MP 54. Soil constraints for these facilities would be the same as those identified for the surrounding pipeline ROW. Soil impacts would be mitigated by the implementation of the measures in WIC's

Plan, such as erosion control practices, topsoil separation and handling procedures, and remediation of compacted soils.

Ancillary facilities would consist of 3 pipe storage yards and a number of staging areas, which would occupy a total of about 104 acres of land in addition to the proposed pipeline ROW disturbance. The pipe storage yards and several staging areas would be located in areas already used for industrial purposes; however, some sites would be located partially or entirely in rangeland. Excavation is not generally anticipated to be required for these areas. Upon completion of the project, compacted soils would be mitigated according to WIC's Plan, and the area would be reseeded as necessary. Following construction, these sites would be restored to their original use. As noted in the footnotes to **table 3.2-1**, soil types in storage yards and staging areas have not been quantified. Impacts on soils from construction activities at these facilities would be minimized because construction and reclamation would follow soil conservation procedures as identified in WIC's Plan, Procedures, and POD.

While normal operations would have negligible effects to soil resources, future routine maintenance activities could result in infrequent, isolated surface disturbances along the pipeline ROW. These future maintenance activities would adhere to construction and reclamation standards within WIC's Plan, Procedures, and POD. Adherence to these plans would minimize impacts associated with future maintenance activities.

3.2.1 Accelerated Erosion

The majority of the proposed route would cross range and shrublands on gently rolling to moderately steep slopes that are highly erodible. Of the total 1,851 acres (not including pipe storage and contractor yards) potentially affected by pipeline construction, 252 acres (approximately 14 percent) are considered highly water erodible (**table 3.2-1**). Removal of vegetation and topsoil on the proposed ROW would accelerate erosion by wind or water. Soils that are highly water erodible are primarily located on rolling to steep landscapes and often have clayey or silty textures with little organic matter. Unstable streambanks or long, unbroken gentle slopes also may contribute to soil losses by water erosion. In addition to waterbody crossings, severe water erodibility may occur at the following sections of the proposed pipeline: MP 4.0 to MP 7.5; MP 16.0 to MP 22.0; MP 27.0 to MP 29.5; MP 37.0 to MP 44.5; MP 48.2 to MP 52.9; MP 101.0 to MP 113.3; and MP 131.4 to MP 136.5. Other short, highly erodible sections occur at steep slopes or cutbanks scattered along the proposed ROW.

Soils having more sandy textures, or silty textures with accumulations of calcium carbonate, may be prone to accelerated wind erosion when disturbed. Isolated locations of such soils occur generally north of the Little Snake River on exposed knolls, basin rims, and windward slopes. They comprise 242 acres (13 percent) of the proposed ROW (**table 3.2-1**).

WIC would control erosion and sedimentation by a variety of different methods as discussed in the project Plan, Procedures, and POD. Major water erosion control measures that would be used during construction include temporary slope breakers, sediment barriers, mulch applications, and revegetation. Trench breakers (sand bags or polyurethane foam within the trench) and permanent slope breakers would be installed for long-term water erosion control. During the operation and maintenance phases of the project, WIC would

monitor and maintain revegetation and control off-road vehicle access (appendix B). During construction in areas prone to wind erosion, WIC proposes to flatten the topsoil stockpiles using the blade of a motor grader, then compact the topsoil to the degree reasonably possible with the rubber tires of a motor grader. The pipe also would be cribbed up over the topsoil to reduce wind erosion. To further reduce topsoil loss due to wind erosion, segregated topsoil in wind-prone areas will be sprayed with water or an approved tackifier to form a crust to minimize topsoil losses due to wind-blown transport. Topsoil losses reduce soil productivity, which encourages still further erosion, and reduces the reclamation potential of the site.

To further minimize soil loss due to wind and maintain air quality, additional dust abatement may be necessary. WIC proposes to use two 3,000 gallon water trucks per spread to water the ROW where dust is causing either a health hazard or a safety hazard such as near road crossings. Each truck would distribute two loads of water per day for a total of 12,000 gallons of water per day for each spread. WIC is not planning to draw water from streams and may use a tackifier for dust abatement. WIC would require light duty vehicles and rubber tired vehicles to use county roads instead of driving down the ROW, where possible.

In areas susceptible to erosion, some of the restored soil covering the pipeline could erode away. While the DOT requires that a pipeline be buried to a specified depth during construction (30 inches in most locations), there are no regulations dictating that the depth of cover be maintained during the life of the pipeline. Therefore, **we recommend that if noticeable wind or water erosion occurs during restoration or operations (as indicated by poor revegetation success, noticeable deflation, sheet or rill erosion, and/or downgradient soil deposition), WIC should renew site restoration treatments (including soil stabilization and revegetation) and install and monitor erosion minimization treatments (e.g., crimped mulch, water and sediment barriers, snow fences) to ensure soil stabilization as part of WIC's ongoing maintenance program. Such efforts should be conducted in coordination with landowners or appropriate federal or state land management agencies.**

3.2.2 Reduced Soil Quality

During construction across BLM and state-owned lands, and subject to the approval of the land managing agency, WIC proposes to strip and segregate topsoil from the ditch line only, except in cut areas where the ROW or additional temporary workspace areas must be leveled for safe construction. In the latter areas, WIC would strip the full ROW. Stripped topsoil would be stored separately and not allowed to mix with trench spoil. On private lands, WIC would segregate topsoil according to landowner requests. If the landowner has not made a specific request regarding topsoil segregation, WIC would use the same methods as described above for BLM and state-managed lands.

We generally agree that limiting the amount of stripping in shallow topsoil areas reduces impacts on topsoil by limiting its disturbance and how much it is handled. Less disturbance generally equates to improved reclamation success and less opportunity for the introduction of invasive species; less handling results in less topsoil loss, which is especially important when topsoil is shallow. However, by not stripping topsoil from the working side of the construction ROW, there is the potential for heavy construction equipment to pulverize the topsoil and intermix it with subsoil as the equipment and vehicles move up and down the ROW. In windy areas, pulverized topsoil would be blown off the ROW and effectively lost. WIC indicates that

it would continue construction activity in croplands when rutting occurs in excess of 4 to 6 inches in depth. This would significantly increase the chance of subsoil mixing with topsoil, and compaction of growth media. Once construction is complete, WIC has committed to cover the affected area with at least an adequate volume of suitable topsoil to replace mixed soils and subsoils. WIC proposes to obtain such topsoil in the project vicinity. WIC would need to obtain additional approval from FERC and the BLM if it obtains topsoil in the project vicinity that adds to the extent of construction disturbance, increases the area to be stabilized and reclaimed, or creates further potential for environmental impacts.

When construction activities proceed under inclement weather conditions or periods of snowmelt, soil rutting would create compaction and potentially mix topsoil with subsoil. The resulting growth media would have limited infiltration and aeration properties, and may have adverse salt or textural characteristics. Limits on construction activities during these periods, and procedures identified in WIC's Plan would mitigate such impacts. In accordance with WIC's Plan, the EI would advise WIC's construction contractor when construction activities restrictions are warranted to avoid excessive rutting under wet weather conditions. On federal lands, the BLM would require that WIC cease construction activities when soil rutting occurs to a depth of 3 inches or more. WIC would interact closely with appropriate BLM offices to follow the agency's Resource Management Plans or other authorized guidance with respect to cessation of work due to rutting on access roads and construction areas on federal lands. Contractors also would attend BLM training as necessary to accomplish access road repair and maintenance on federal land. If construction along any segment of the ROW has been shut down due to inclement weather conditions or periods of snowmelt, it would be up to the EI to determine if conditions are favorable to resume construction, with written approval to resume from the federal compliance monitor.

Where topsoil is pulverized by movement of equipment and blown off the ROW, **we recommend that WIC's EIs monitor for potential topsoil degradation in areas where it is not stripped from the working side of the construction ROW. If topsoil in these areas becomes powdered or pulverized to a depth of 4 inches and is being mixed with subsoil, or if wind is moving topsoil off the ROW regardless of dust control measures applied, then WIC should strip topsoil from both the ditch line <u>and</u> the working side of the ROW and replace topsoil in the impacted areas.** As required by WIC's Plan, topsoil stockpiles would be segregated from trench spoil. WIC would continue with this expanded topsoil stripping procedure until construction encountered an area with soils having a less inherently wind-erodible texture and structure under traffic conditions. Such soils would generally exhibit greater cohesion. Here, limited topsoil stripping of the ditch line only could be resumed if approved by both the EIs and federal agencies' compliance monitors.

No areas of compaction-prone soils were identified along the proposed pipeline (**table 3.2-1**). However, BLM input indicates that compactable soils do in fact occur along the proposed ROW; their occurrence is masked by the large scale at which soil assessments were conducted for the proposed project. During restoration, WIC would implement its proposed compaction-relief procedures at any location where compaction occurs in accordance with WIC's Plan.

About 35 percent of the pipeline route contains soils with substantial rocks and stones in the surface soil horizons, with the majority of rocky soils occurring in Wyoming (**table 3.2-1**). Soils containing shallow

bedrock occupy about 13 percent (241 acres) of the proposed pipeline route. Given the geology of the proposed ROW, it is expected that the near-surface bedrock in almost all of these areas is soft enough to be ripped with backhoes or bulldozers equipped with rippers.

During construction, WIC would minimize the introduction of substrate rock into topsoil, ensuring that the amount of rock on the ROW after construction would be similar to or less than the area adjacent to the ROW. Rock excavated from the trench may be used to backfill the trench only to the top of the existing bedrock profile. Excess rock would be removed from at least the top 12 inches of soil in all actively cultivated or rotated cropland and pastures, hayfields, as well as other areas at the landowner's request. Where necessary, excess rock would be either hauled off the ROW or disposed of on the ROW, if approved by the landowner or land management agency and as allowed by applicable permit conditions.

About 3 percent (66 acres) of soils along the proposed route are inherently droughty (**table 3.2-1**). To mitigate the adverse effects of pipeline construction on droughty soils and to assist with revegetation efforts, WIC would apply mulch and stabilize the soil surface to minimize wind erosion and to conserve soil moisture. Proposed seed mixes for sandy or salt desert sites may be used on these areas, as indicated in WIC's updated Reclamation Plan.

Soils suitable for use as prime farmlands comprise about 7 percent (123 acres) of the proposed ROW. It is likely that most or all of these areas have been historically used for growing crops or hay. In several locations, notably along the Yampa and White Rivers and in the Coyote Basin, irrigation systems are in place. The pipeline also would cross about 19 acres of hydric soils, an indicator of areas that may contain drain tiles for crop production. WIC has committed to replace or repair any drain tiles damaged by construction activities. WIC has agreed to maintain water flow to irrigation systems throughout construction unless landowner permission is obtained to temporarily interrupt water flow. If damage to irrigation systems occurred during construction, WIC has agreed to restore or repair the damage.

Areas where near-surface soil salinity and/or alkalinity may make site restoration more difficult include the following portions of the ROW: MP 8.5 to MP 9.0; MP 16.5 to MP 17.0; MP 19.8 to MP 20.5; MP 27.7 to MP 28.3; MP 52.9 to MP 53.4; MP 79.9 to MP 81.1; MP 87.9 to MP 88.3; and shorter lengths of ROW at about MP 69.4 and MP 78.4. Other saline/alkaline sites may occur in scattered locations. These soils exhibit a characteristic pattern of localized bare spots and scattered, salt-tolerant vegetation. Although saline and sodic soils do not comprise a large acreage of soils along the pipeline route, construction disturbances in areas containing these soils would be difficult to revegetate and could require additional efforts to achieve adequate restoration. WIC would consult with the NRCS and BLM, or other soils specialists, as appropriate, to develop additional restoration measures for these soils.

3.2.3 Soil Contamination

Soil contamination along the route could result from at least two sources: material spills during construction and trench excavation through pre-existing contaminated areas. Contamination from spills or leaks of fuels, lubricants, coolants, and solvents from construction equipment could impact soils by destroying microbial populations, changing the chemical nature of the soil, and adversely affecting soil structure, permeability, and aeration. The occurrence and extent of these impacts would typically be minor because of the low

frequency and volumes of spills. WIC would be required to clean up spills in accordance with its SPCC Plan (WIC 2005a). There are currently no known contaminated sites crossed by the proposed pipeline route or affected by aboveground and ancillary facilities. If contaminated or suspect soils (e.g., hydrocarbon contamination) were identified during trenching operations, work in the area of the suspected contamination would be halted until the type and extent of the contamination was determined. The type and extent of contamination, the responsible party, and local, state, and federal regulations would determine the appropriate cleanup method(s) for these areas.

There are no known National Priority List sites, Comprehensive Environmental Response, Compensation, and Liability Information System sites, or state landfills within 1 mile of the proposed pipeline route (EPA 2003a,b). Review of the National Response Center identified no reported spills within 1 mile of the proposed pipeline route (EPA 2004a).

3.2.4 Noxious Weeds and Other Invasive Plant Species

Subsequent to soil disturbances, vegetation communities can be susceptible to infestations of invasive or exotic weed species. Vegetation removal and soil disturbance during construction could create optimal conditions for the establishment of invasive, non-native species. Construction equipment traveling from weed-infested areas into weed-free areas could disperse noxious or invasive weed seeds and propagates, resulting in the establishment of these weeds in previously weed-free areas.

The prevention of the spread of noxious and invasive weeds is a high priority to nearby communities. Under Executive Order 13112, federal agencies shall not authorize, fund, or carry out actions likely to cause or promote the introduction or spread of noxious or invasive species in the U.S. or elsewhere unless it has been determined that the benefits of such actions outweigh the potential harm caused by these species and that all feasible and prudent measures to minimize the risk of harm will be taken in conjunction with the actions.

The Little Snake, White River, and Rawlins FOs of the BLM provided lists of noxious weed species having the potential to occur along the proposed ROW (**table 3.2-3**). In total, there are 20 species included on these lists, of which 16 may potentially occur within the proposed project area in Wyoming and 14 may occur in the proposed project areas in Colorado. These are species that the BLM attempts to manage in the western United States. The states of Colorado and Wyoming also maintain similar, but not identical, lists of designated noxious weed species (**table 3.2-3**). In total, there are 42 noxious weed species that potentially occur within the proposed project area in Colorado and 24 noxious weed species that potentially occur within the proposed project area in Wyoming. Additionally, WIC conducted field surveys for noxious weeds in 2004 and the findings are summarized in **table 3.2-3**.

The Wyoming Weed Program is a programmatic plan, similar to the BLM Weed Management Plan. In comparison, the Colorado Weed Program is more prescriptive. Under the Colorado Noxious Weed Act (§ 35 5.5-101 through 119, C.R.S. [2003]), noxious weeds are classified into three lists, A, B, and C. Each list has specific control requirements, with the most stringent requirements for those species found on List A.

Table 3.2-3
Noxious Weeds Potentially Occurring Along the Proposed Pipeline Route

Common Name	Scientific Name	Colorado Noxious Weed List	Wyoming Noxious Weed List	BLM Little Snake FO	BLM White River FO	BLM Rawlins FO	Rio Blanco County, CO	Moffat County, CO	Sweetwater County, WY	Located During 2004 Field Surveys
Quackgrass	*Agropyron repens*	B	X						X	
Camelthorn	*Alhagi pseudalhagi*	A								
Common Burdock	*Arctium minus*	C	X			X	X		X	MP 111.0
Cheatgrass	*Bromus tectorum*	C		X						
Whitetop / Hoary Cress	*Cardaria draba*	B	X	X		X	X		X	MP 20.0
Plumeless Thistle	*Carduus acanthoides*	B	X	X			X	X	X	
Musk Thistle / Biannual Thistle	*Carduus nutans*	B	X	X	X	X	X		X	MP 111.0
Spotted Knapweed	*Centaurea maculosa*	B	X	X	X	X	X	X	X	
Diffuse Knapweed	*Centaurea diffusa*	B	X	X		X	X	X	X	
Black Knapweed	*Centaurea nigra*						X			
Meadow Knapweed	*Centaurea pratensis*	A								
Russian Knapweed	*Centaurea repens*	B	X	X		X	X	X	X	
Yellow Starthistle	*Centaurea solstitialis*	A					X			
Squarrose knapweed	*Centaurea virgata*	A								
Rush Skeletonweed	*Chondrilla juncea*	A								
Oxeye Daisy	*Chrysanthemum leucanthemum*		X						X	
Canada Thistle	*Cirsium arvense*	B	X	X	X	X	X	X	X	MPs 111.0, 114.3, 114.7, 114.8, 120.3, 122.8, 127.7, 135.1
Bull Thistle	*Cirsium vulgare*	B		X	X			X		
Field Bindweed	*Convolvulus arvensis*	C	X	X		X	X	X	X	MP 111.0
Common Crupina	*Crupina vulgaris*	A								
Houndstongue	*Cynoglossum officinale*	B	X	X	X	X	X		X	MPs 111.0, 111.9, 117.0, 133.7, access road in Strawberry Park area
Cypress spurge	*Euphorbia cyparissias*	A								
Leafy Spurge	*Euphorbia esula*	B	X	X		X	X	X		MPs 127.7 131.7, 133.0, 133.3, 133.7, access road near MP 129.5
Myrtle Spurge	*Euphorbia myrsinites*	A								

Table 3.2-3 (Continued)

Common Name	Scientific Name	Colorado Noxious Weed List	Wyoming Noxious Weed List	BLM Little Snake FO	BLM White River FO	BLM Rawlins FO	Rio Blanco County, CO	Moffat County, CO	Sweetwater County, WY	Located During 2004 Field Surveys
Skeletonleaf Bursage	*Franseria discolor*	A	X						X	
Curly Cup / Gum Weed	*Grindelia squarrosa*						X			
Halogeton	*Halogeton glomeratus*	C		X		X	X			
Foxtail Barley	*Hordeum jubatum*								X	
Hydrilla	*Hydrilla verticallata*	A								
Black Henbane	*Hyoscyamus niger*	B		X	X	X	X	X	X	
Common St. Johnswort	*Hypericum perforatum*	C	X						X	
Dyer's Woad	*Isatis tinctoria*	A	X			X			X	
Kochia / Fireweed / Summer Cypress	*Kochia scoparia*						X			
Perennial Pepperweed / Tall Whitetop	*Lepidium latifolium*	B	X	X	X	X	X	X	X	
Sericea Lespedeza	*Lespedeza cuneata*	A								
Dalmation Toadflax	*Linaria dalmatica*	B	X	X		X	X		X	
Yellow Toadflax	*Linaria vulgaris*	B	X				X		X	
Wyeth Lupine	*Lupinus wyethii*									
Purple Loosestrife	*Lythrum salicaria*	A	X						X	
Scotch Thistle	*Onopordum acanthium*	B	X				X		X	MP 111.0
Plains Pricklypear	*Opuntia polyacantha*									
African Rue	*Penganum harmala*	A								
Sulfur Cinquefoil	*Potentilla recta*	C					X			
Russian Thistle / Tumbleweed	*Salsola tragus*						X			
Mediterranean Sage	*Salvia aethiopis*	A								
Giant Salvinia	*Salvinia molesta*	A								
Tansy Ragwort	*Senecio jacobaea*	A								
Perennial Sowthistle	*Sonchus arvensis*	C	X						X	
Medusahead	*Taeniatherium caput-medusae*	A								
Salt Cedar / Tamarisk	*Tamarix* spp.	B	X	X		X			X	
Common Tansy	*Tanacetum vulgare*	B	X						X	
Common Mullein	*Verbascum thapsus*	C		X	X		X	X	X	MP 111.9

List A includes noxious weeds targeted for eradication and for which management plans have been developed for their control. Control of these species is required by law. If these species were found along WIC's ROW or aboveground facilities in Colorado, WIC would be required to follow the prescribed management techniques stipulated by Colorado's Noxious Weed Act. These techniques must be applied for the duration of the seed longevity for the particular species. List B species are recommended for control, but management plans have not yet been developed for these species and control is not required by law. List C species are generally considered too widespread to effectively control, and control of List C species is not required.

To control the spread of noxious weeds, WIC has prepared a Weed Plan (appendix G) incorporating details regarding known occurrences of noxious weeds along the proposed project. The Weed Plan addresses current treatment of known noxious weed areas, and mitigation measures that WIC would implement to minimize the spread and establishment of these species. WIC would require that its contractors adhere to the mitigation measures outlined in its Weed Plan. The following summary identifies mitigation measures which would be implemented to prevent the spread of noxious weeds. Please refer to appendix G for a comprehensive list of preventative and treatment measures.

- Based on survey results and agency consultations, pretreatment of noxious weed infestations may be conducted in selected areas. Depending on the species and the time of construction, treatment methods could include chemical or mechanical methods to remove noxious weed populations from the construction ROW prior to surface disturbance;

- Prior to mobilizing to the project area, all contractor vehicles and equipment would be required to be cleaned of soil and debris that is capable of transporting noxious weed propagules. All contractor vehicles and equipment would be inspected by the EI(s) and may require additional cleaning;

- The contractor would ensure that certified weed-free straw or hay bales used to construct sediment control devices or used as mulch applications are obtained from approved certified sources, as recommended by the County Weed and Pest Districts, Weed Control Supervisors, and the states of Colorado and Wyoming;

- Segregated topsoil in areas identified as supporting noxious weeds would not be moved outside the boundaries of that area or transported for use to other locations on the project;

- The Contractor would implement the reclamation of disturbed lands immediately following construction as outlined in the Reclamation Plan. Continuing revegetation efforts would ensure adequate vegetation cover to prevent the establishment of noxious weeds;

- Suitable habitat for four state and BLM-listed sensitive plants has been identified along the proposed ROW (section 3.6). Herbicide use would be prohibited in these areas, and noxious weeds would be controlled by manual methods only (unless herbicide use is approved by the BLM). However, in Wyoming, manual methods in combination with spot-herbicide application would be approved for use to control noxious weed populations.

During scoping, we received several comments expressing concern about loss of vegetation productivity. However, the most common concern expressed was the potential for the introduction and spread of noxious and invasive weeds. Many of the concerns and suggestions are addressed by elements of WIC's Plan (such as topsoil segregation and NRCS recommendations for seeding and weed control) and by WIC's Weed Plan. This plan presents information provided by WIC, various county weed departments, and BLM offices, identifying where noxious species are present along portions of the proposed pipeline route. WIC proposes to use compressed air to remove noxious weeds and weed propagules from construction equipment. We consulted with local weed control agencies and washing with water would be the preferred method to remove noxious weeds and their seeds. As additional mitigation to reduce the potential for the introduction and spread of weeds, **we recommend that WIC revise its Weed Plan in consultation with the appropriate BLM field offices to include the following additional elements:**

a. invasive weeds listed by the appropriate BLM FO(s);

b. a site-specific plan for each location where noxious or invasive weeds are present that:

- **i. describes options for pretreatment (including the month(s) of the year when pretreatment would be effective);**
- **ii. identifies who was consulted regarding possible pretreatment options;**
- **iii. includes whether the landowner/administrator has approved of the pretreatment;**

c. the replacement of the compressed air wash stations proposed for removal of noxious weeds from construction equipment with water wash stations that are more effective in removing weeds and their seeds;

- **i. review and revise, as necessary, the location of all equipment wash stations (by MP) in consultation with the BLM;**
- **ii. for each wash station, plans should identify the source(s) of the wash water, how effluent from the wash stations would be monitored/treated to prevent seed releases, and specific plans for station decommissioning;**
- **iii. include a scaled plot plan of a typical wash station in the Weed Plan, identifying all features;**
- **iv. locate wash stations at least 0.25 mile from all perennial streams and monitor wash station locations for weeds after construction as part of the ROW monitoring and reclamation efforts; and**
- **v. include plans for an intermediate wash station south of the Yampa River to minimize the spread of whitetop (*Cardaria* species) north of the river resulting from construction traffic through the heavy infestations between the Yampa River and the Greasewood Compressor Station.**

Prior to construction, WIC shall file the revised Weed Plan with the Secretary for review and written approval of the Director of the OEP.

Despite efforts to prevent the spread of noxious weeds, it is possible that pipeline operation and maintenance activities (e.g., ground surveillance, routine checks of MLVs) would increase the prevalence of noxious weeds along the ROW or that weeds would be transported into areas that were relatively weed-free. WIC proposes to monitor noxious weeds twice a year for 5 years, and would continue monitoring as long as it takes to control any infestations. WIC's operations personnel would be trained in the identification of predominant noxious weed populations and would report spreads of noxious weeds during the normal course of maintenance.

Finally, to provide landowners with a specific avenue for resolving construction and ROW restoration issues, **we recommend that WIC develop and implement an environmental complaint resolution procedure that remains active for at least 3 years following the completion of construction. The procedure should provide landowners with clear and simple directions for identifying and resolving their environmental mitigation problems/concerns during construction of the project and restoration of the ROW. Prior to construction, WIC should mail the complaint resolution procedure to each landowner whose property would be crossed by the project.**

a. **In its letter to affected landowners, WIC should:**

   i. **provide a local contact and telephone number that the landowners should call first with their concerns; the letter should indicate how soon a landowner should expect a response;**

   ii. **instruct the landowner that, if they are not satisfied with the response, they should call WIC's Hotline; the letter should indicate how soon to expect a response; and**

   iii. **instruct the landowners that if they were still not satisfied with the response from WIC's Hotline, they should contact the Commission's Enforcement Hotline at (888) 889-8030 or at hotline@ferc.gov.**

b. **In addition, WIC should include a table in its weekly status report containing the following information for each problem/concern:**

   i. **the identity of the caller and the date of the call;**

   ii. **the identification number from the certificated alignment sheet(s) of the affected property and approximate location by MP;**

   iii. **a description of the concern/problem; and**

   iv. **an explanation of how and when the problem was resolved, will be resolved, or why it has not been resolved.**

3.3 Water Resources

3.3.1 Groundwater

Aquifers within the proposed project area consist mainly of consolidated sedimentary bedrock formations. Thin alluvial aquifers parallel larger drainageways, but groundwater is typically withdrawn from the deeper bedrock zones. **Figure 3.3-1** illustrates the locations of major water-bearing geologic formations that would underlie the proposed project. Some of these aquifers overlap each other at varying depths. At the proposed construction start in Sweetwater County, Wyoming, regional groundwater resources occur in sedimentary rocks of the Wasatch - Fort Union aquifer (Whitehead 1996). The principal water-yielding beds consist of sandstones; these are interbedded with shale, mudstone, and some coal. Depth to groundwater varies, but is generally less than 200 feet. The water is typically of good quality. Southward near the Washakie Basin, relatively small yields are supplied by aquifer zones of the Laney Member of the Green River Formation (Whitehead 1996; WIC 2005a). Younger members of the Green River Formation form confining units near the proposed ROW along the basin margin. Depth to groundwater increases to 500 feet or more, and water quality ranges from fresh (at shallow depths along the basin margins) to briny (at greater depths).

Along the proposed route in Moffat County, Colorado, the Wasatch Formation is again the primary source of water to wells. South of the Yampa River, sandstones of the Browns Park Formation also yield water. On a regional basis within Colorado, these units have been grouped with the Mesa Verde aquifer system (Robson and Banta 1995; WIC 2005a). In the Piceance Basin of Rio Blanco County and southern Moffat County, the Uinta Formation and the Parachute Creek Member of the Green River Formation contain the major aquifer zones. Regionally, these are part of the Uinta-Animas aquifer system (Robson and Banta 1995; WIC 2005a). Intergranular spaces in these rocks have mostly been filled with bicarbonate cements, but numerous fractures produce substantial permeability. Dissolved solids concentrations in the upper part of the aquifer range from 500 to over 1,000 milligrams per liter.

In addition to sedimentary rocks, narrow streamlaid deposits of sands and gravels form alluvial groundwater sources along major drainages. Significant alluvial aquifers occur along the Yampa and White Rivers and Strawberry Creek. Alluvial aquifers also occur along the Little Snake River and Spring Creek, both tributaries to the Yampa River. Depth to water is shallow in these aquifer zones (often less than 20 feet). Water quality varies, but is typically suitable for domestic and agricultural uses.

Springs are known to occur along the southern half of the proposed route, and may occur at isolated locations in the northern portion as well. A number of these are located in or adjacent to alluvial deposits, at the intersection of the channel and groundwater flow within the stream terrace system. Others occur on hillsides at a distance upgradient from the proposed ROW. Springs in these locations are not likely to be affected by blasting or other construction practices. At other locations, notably near MP 115.5 and MP 133.7, springs occur where pipeline construction or access road improvements may affect flows. For this reason, springs are included in the potential impact discussion and recommendations.

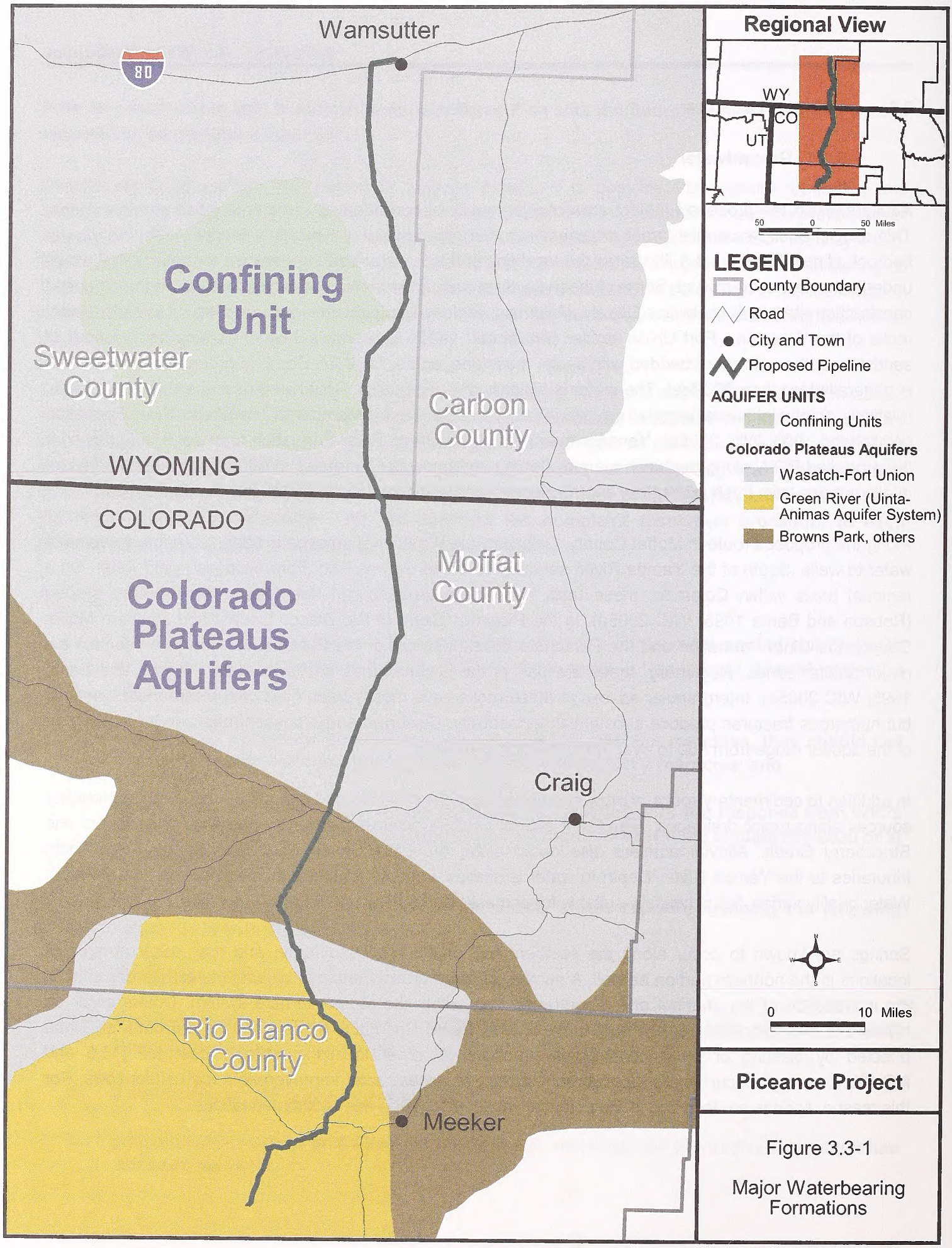


Figure 3.3-1

Major Waterbearing Formations

4/4/05

Many public and private water supply wells in Colorado and Wyoming are in alluvial valleys (lowlands next to streams and rivers). Such wells can be very productive and yield high quality water; however, because they are relatively shallow, they are the most vulnerable to pollution from surface activities. The depth to groundwater in alluvial wells is often influenced by water levels in nearby streams and can fluctuate several feet seasonally. No public water supply wells or wellhead protection areas are known to be located within 400 feet of the pipeline route. Private water wells occur along the proposed pipeline route, but almost all are 150 feet or more from the centerline. WIC obtained water well location data from the state engineer's offices in Wyoming and Colorado (WIC 2005a), as well as from surveyors' data taken during route alignment. Three water wells were found by field survey within 150 feet of centerline (**table 3.3-1**), all within Colorado. One of these is used for watering livestock, the other two are monitoring wells.

Table 3.3-1
Groundwater Wells Within 150 Feet of the Proposed Centerline

Milepost	Distance from Centerline (feet)	Well Use	Well Owner
101.8	66	Livestock	Private
135.0	8	Monitoring	Private
135.0	38	Monitoring	Private

Because permanent aboveground facilities would be located at existing facilities and either on or adjacent to the proposed ROW, groundwater resources in the vicinity of aboveground facilities would be the same as those described for the proposed pipeline route. WIC has no plans to use groundwater during construction or operation; consequently, impacts to groundwater quantity would be limited to those caused by the physical disturbance of the overlying soils and runoff during grading, trenching, and blasting.

Impacts to groundwater resources would be minimized or avoided by the use of standard construction practices as outlined in WIC's Plan and Procedures. Ground disturbance associated with typical pipeline construction primarily would be limited to 10 feet or less below the existing ground surface, which is above most shallow aquifers and well completion zones. Nevertheless, construction activities such as trenching, blasting, dewatering, and backfilling could encounter shallow alluvial aquifers and cause minor fluctuations in shallow groundwater levels and/or increased turbidity within the aquifer adjacent to the activity. Impacts to deeper aquifers are not anticipated. Since most shallow alluvial aquifers exhibit rapid recharge and groundwater movement, shallow aquifers would likely quickly reestablish equilibrium if disturbed, and turbidity levels would rapidly subside. Consequently, the effects of construction would be short term.

Blasting would likely be required along segments of the proposed pipeline where hard bedrock is on or near the ground surface (**tables 2.3-2 and 3.2-1**). Blasting operations have the potential to damage nearby structures including springs, wells, buildings, and underground pipelines. To minimize potential impacts, WIC has developed a Blasting Plan (WIC 2005b) that identifies blasting procedures including safety, use, storage and transportation of explosives, and limits on particle velocities, seismological frequency, and time delay. Briefly, the Blasting Plan requires that:

- blasting for grade or ditch excavation would only be used after all other reasonable means of excavation have been used and are unsuccessful in achieving the required results, and a detailed blasting plan has been provided by the construction contractor and approved;

- all blasting would be performed by licensed blasters who would be required to secure all necessary permits and comply with regulatory requirements in connection with the transportation, storage, and use of explosives, and blast vibration limits;

- precautions would be taken including, but not limited to, appropriate flags, barricades, and visual and audible warning signals be used to ensure safety during blasting operations. Blast mats or approved dirt cover would be used when needed to prevent damage and injury from fly rock;

- control would be exercised to prevent damage to underground structures, such as cables, conduits and pipelines, or to springs, water wells and other water courses. Blasts would be monitored to ensure that the peak particle velocity did not exceed the specified maximum velocities;

- blasting would not be done until occupants of nearby buildings, stores, residences, places of business, places of public gathering and farmers have been notified sufficiently in advance to protect personnel, property, and livestock; and

- all blasting within 300 feet of a high pressure line would require seismological monitoring unless otherwise agreed upon following review of the detailed blasting plan.

In addition, WIC states in its water resources report that it would make every effort to avoid blasting within 150 feet of an existing well or spring. The line was rerouted to avoid a spring east of Hay Gulch (MP 132.2). Should blasting occur within this distance, WIC would test wells for depth and water quality prior to and after blasting. If a well were damaged, WIC would repair the well casing and monitor the well until pre-blasting criteria were achieved or landowner accord was satisfied. If necessary, a new well would be drilled. Flows from springs in the vicinity of the blasting would be tested for flow volume and water quality prior to and after blasting.

In order to minimize potential impacts from blasting and to adequately assess groundwater resource conditions before and after blasting, **we recommend that WIC should:**

a. **integrate provisions from the filed environmental report into the Blasting Plan (e.g., before-and-after inspections at any water supply wells and springs within 150 feet of construction areas, and subsequent repairs or compensation, if necessary), so that one inclusive reference is available for the construction and inspection staff;**

b. **monitor ground vibrations at the nearest structure, spring, or water supply well within 150 feet of construction areas during blasting activities;**

c. **provide an alternative source of water (if water supply wells/systems were damaged during construction) until the well or system was repaired/replaced or the landowner was fairly compensated for the damage;**

d. **coordinate blasting in the vicinity of existing pipelines with the other pipeline operator(s) and follow operator-specific procedures as necessary; and**

e. **file a report with the Secretary within 30 days of placing the pipeline facilities in service identifying all water supply wells/systems damaged by construction and how they were repaired, including a discussion of any complaints concerning the well yield or water quality and how each problem was resolved.**

A potential hazard of long-term groundwater contamination exists from vehicle refueling and maintenance, from hazardous material spills that occur during construction, or from the disturbance of contaminated soils. Spills or leaks of fuels or other hazardous liquids may affect groundwater quality, and dispersal of pollutants from affected soils could be a continuing source of aquifer contamination. The deterioration of groundwater quality by such factors could adversely affect groundwater uses. These impacts could be avoided or minimized by restricting the locations of parking, refueling, and storage areas and by implementing procedures to prevent and respond to spills or leaks of hazardous materials.

In the event that contaminated soil and/or groundwater contamination was encountered during construction, WIC would notify the affected landowner and coordinate with the appropriate federal and state agencies as mandated by notification requirements. Overall, WIC's Plan and Procedures set forth measures that restrict locations for overnight parking and fueling of equipment, hazardous materials storage, and concrete coating activities. Additional procedures address preparedness for rapid containment and prompt and effective cleanup of spills. WIC has developed a SPCC Plan (WIC 2005a), that addresses some of these issues. In combination with its SPCC Plan, WIC's overall Plan and Procedures:

- identify preventative measures to avoid hazardous material spills or leaks;
- regulate locations for refueling, lubricating, and equipment washing activities;
- provide for vehicle and equipment inspection and maintenance;
- define proper storage and handling of fuels, lubricants, and hazardous materials;
- identify immediate spill response procedures for uplands, wetlands, or waterbodies; and
- establish reporting and notification protocols.

Equipment refueling, parking and lubrication, and storage of fuel, hazardous materials or other potential contaminants would typically be restricted to locations at least 100 feet from waterbodies, wetlands, and potable water wells. If contingency sites are necessary (due to space restrictions and/or efforts to avoid excessive ROW disturbance), their locations would be reviewed with the construction EI before initiating refueling, materials storage, parking, washing, or other activities.

WIC's Procedures require that refueling activities and hazardous material storage occur at least 100 feet from a wetland, waterbody, or designated municipal watershed areas. The BLM believes that the separation

distance should be increased to 500 feet in order to minimize the potential that groundwater resources could be damaged by pipeline construction. Therefore, the BLM would require that WIC restrict refueling, lubricating, and hazardous material storage to at least 500 feet away from the edge of any stream, wetland, ditch, or other waterbody, on federal lands unless written approval from the BLM is received.

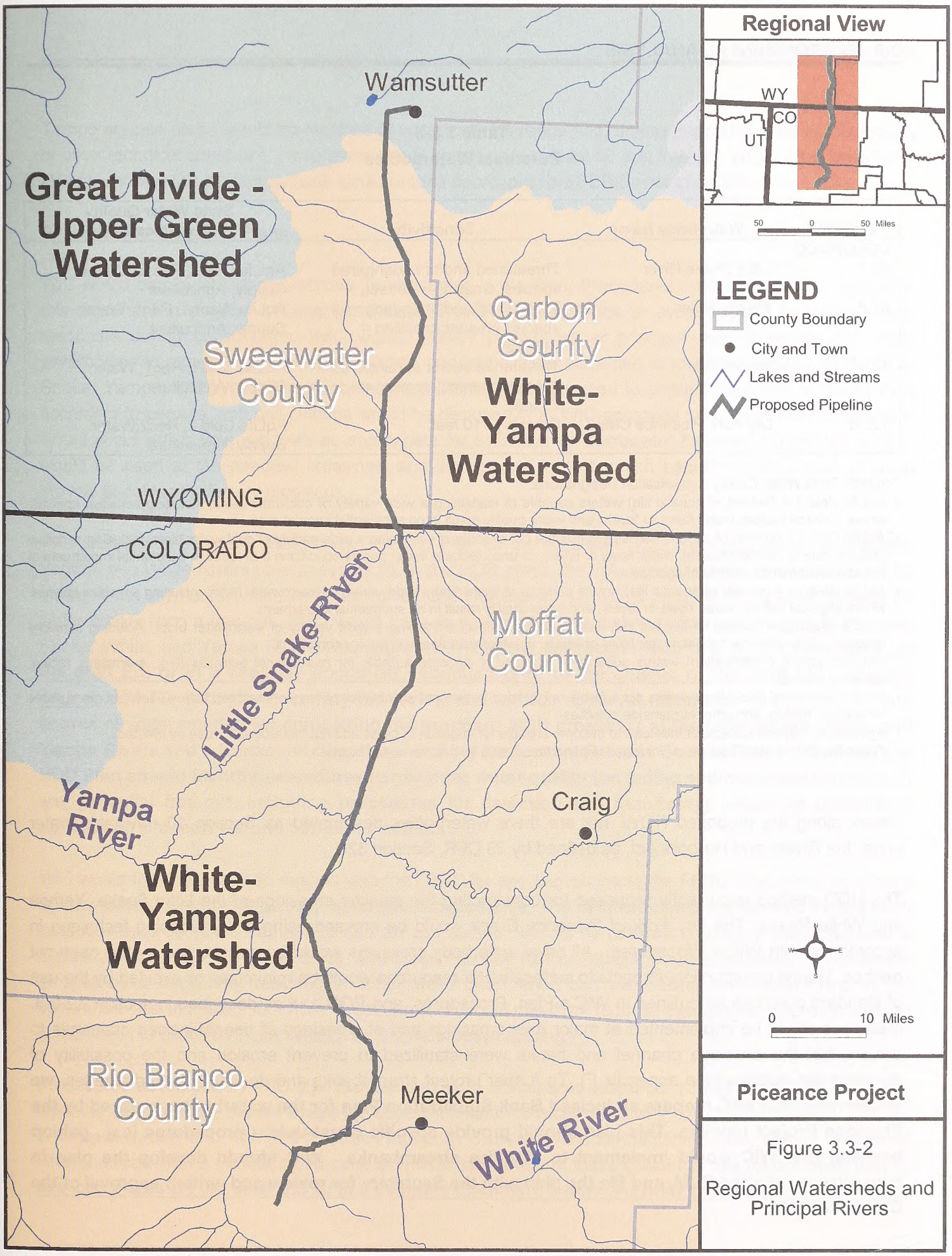
Pipeline construction may involve disposal of groundwater encountered during trench excavation. Since the disposal structures are likely to be located outside the cleared disturbed area, prior approval from the landowner and state agencies would be required. By law, WIC would be required to apply to the states for temporary groundwater disposal permits, and would be required to comply with permit stipulations as well as erosion control/revegetation provisions of WIC's Plan and POD. It is expected that such regulatory compliance would avoid or minimize potential impacts from trench dewatering.

We believe that implementation of the measures and the procedures contained in WIC's Plan and Procedures would avoid or minimize potential impacts associated with vehicle and equipment refueling and lubricating activities, hazardous material storage and handling, and responses to spills or leaks of hazardous materials during construction of the project. During future operation and maintenance activities, WIC would continue to adhere to standards within its Plan, Procedures, and POD to prevent contamination of groundwater resources from potential spills of hazardous materials. Future variances from these procedures would require the approval of the FERC and the affected land management agency or landowner. Given the low probability of a pipeline leak and the physical and chemical properties of processed natural gas, adverse impacts to groundwater resources would not be anticipated during operation and maintenance of the pipeline and its associated facilities. Overall, we believe that construction and operation of the proposed project would not significantly impact groundwater resources.

3.3.2 Surface Water

The proposed pipeline would be located within the upper Colorado River Basin and the Great Divide Basin. The latter is a large, enclosed basin (having no external drainage) in southwestern Wyoming. Only the proposed ROW immediately south of Wamsutter is located in the Great Divide Basin. The remainder of the project area eventually drains to the Green River, a tributary of the upper Colorado River. Principal waterbodies along the proposed ROW include the Little Snake, the Yampa, and the White Rivers. **Figure 3.3-2** illustrates these regionally important drainageways and **table 3.3-2** further characterizes them. Spring Creek, Deception Creek, Bob Hughes Creek, Strawberry Creek, and the Dry Fork of Piceance Creek are additional tributary streams important to surface water resources along the proposed pipeline route.

A total of 182 waterbodies would be crossed by the proposed route. Of these, 178 are intermittent or ephemeral. Four perennial stream crossings would include the Little Snake River, Yampa River, White River, and the Dry Fork of Piceance Creek. Of these, the Dry Fork crossing would be a minor crossing (less than 10 feet wide), the Little Snake and White River crossings would be intermediate (between 10 and 100 feet wide), and the Yampa River would be a major crossing (over 100 feet wide). There are no impaired



Piceance Project

Figure 3.3-2

Regional Watersheds and Principal Rivers

4/4/05

Table 3.3-2
Perennial Waterbodies

State/MP	Waterbody Name	Sensitivity	State Water Quality Classification
COLORADO			
53.1	Little Snake River	Threatened and/or endangered species; crossing = 40 feet.	AqLife Cold1; Rec1a; Water Supply; Agriculture
87.6	Yampa River	Threatened and/or endangered species present; crossing = 140 feet.	AqLife Warm1; Rec1; Water Supply; Agriculture
127.7	White River	Threatened and/or endangered species present; crossing = 75 feet.	AqLife Cold1; Rec1; Water Supply; Agriculture
135.0	Dry Fork Piceance Creek	Crossing <10 feet.	AqLife Cold 2; Rec2;Water Supply, Agriculture

Colorado State Water Quality Classification Designations:

- AqLife Cold 1 = (subset of aquatic life) waters capable of sustaining a wide variety of coldwater biota, including sensitive species, where physical habitat, water flows or levels, and water quality result in no substantial impairments.
- AqLife Cold 2 = (subset of aquatic life) waters that are not capable of sustaining a wide variety of cold water biota, including sensitive species, due to physical habitat, water flows or levels, or uncorrectable water quality conditions that result in substantial impairment of the abundance and diversity of species.
- AqLife Warm 1 = (subset of aquatic life) waters capable of sustaining a wide variety of warmwater biota, including sensitive species, where physical habitat, water flows or levels, and water quality result in no substantial impairment.
- AQLife Warm 2 = (subset of aquatic life) waters not capable of sustaining a wide variety of warmwater biota, including sensitive species, due to physical habitat, water flows or levels, or uncorrectable water quality conditions.
- Rec1 = (subset of recreation) waters suitable or intended to become suitable for recreational activities (e.g., swimming, rafting, kayaking, tubing).
- Rec2 = (subset of recreation) waters not suitable or intended to become suitable for primary contact recreation uses, but are suitable for wading, fishing, and other streamside activities.
- Agriculture = waters suitable or intended to become suitable for irrigation of crops and not hazardous for use by livestock.
- Water Supply = waters suitable or intended to become suitable for potable water supplies.

waters along the proposed ROW, nor are there waterbodies designated as Section 10 navigable water under the Rivers and Harbors Act, as defined by 33 CFR, Section 328.

The HDD method is currently proposed for constructing the pipeline crossings of the Little Snake, Yampa and White Rivers. The Dry Fork of Piceance Creek would be crossed using a dry crossing technique in accordance with WIC's Procedures. All other waterbody crossings would be constructed by the open-cut method. During construction, impacts to surface water resources would be minimized or avoided by the use of standard practices as outlined in WIC's Plan, Procedures, and POD and as described in section 2.3.2.3. Measures would be implemented at major river crossings and at crossings of deeply incised drainages to ensure that the drainage channel and banks were stabilized to prevent erosion and the possibility of exposing the pipeline (see appendix F). To further protect streambanks and deeply incised drainages, **we recommend that WIC prepare an Incised Bank Stabilization Plan for the waterbodies crossed by the Piceance Project pipeline. This plan should provide specific construction procedures (e.g., gabion baskets) that WIC would implement to stabilize streambanks. WIC should develop the plan in consultation with the BLM, and file the plan with the Secretary for review and written approval of the Director of OEP.**

Temporary use areas would be required at waterbody crossings and, unless impractical due to topography or other technical constraint, these areas would be set back at least 50 feet from the edge of the waterbody. Deviations from this 50-foot setback would require approval of the FERC prior to construction.

Site-Specific Crossing Plans

WIC would employ standard practices (as presented in the Plan, Procedures, and POD and as outlined in this document in chapter 2.0 and appendices D and F), to minimize or avoid impacts to surface water resources during construction. WIC would employ procedures at principal river crossings and other waterbodies to ensure that drainage channels and banks were stabilized to minimize erosion. At the Little Snake, Yampa, and White Rivers, containment berms would be used to prevent migration of drilling mud according to permits, and drill cuttings would be disposed of at WIC-approved sites. In-stream construction would occur within time windows as appropriate for coldwater or warmwater fisheries. Equipment bridges would be used at the principal crossings, and the upper 1 foot of trench backfill would consist of clean gravels at coldwater fishery crossings.

WIC prepared site-specific Waterbody Crossing Plan for the proposed HDD crossings of the Little Snake, Yampa, and White Rivers (see appendix F). In the HDD plans, the volume and source of water needed for drilling is not estimated. Also, WIC has not identified measures that would be taken to minimize impacts on water quality from a frac-out. WIC would have to provide this information before construction at the Little Snake, White, and Yampa Rivers was approved. Therefore, **we recommend that in any comments on the draft EIS or in a separate document submitted prior to the closing of the draft EIS comment period, WIC file with the Secretary for review and written approval, estimates of the volume and source of water needed for completing the proposed HDD crossings at the Little Snake, White, and Yampa Rivers and a Horizontal Directional Drilling Inadvertent Release Control Plan (HDD Plan). The HDD Plan should identify procedures to minimize water quality (including sedimentation) impacts of any potential frac-out, including procedures for detection and monitoring, response equipment, notification procedures, and corrective actions.**

WIC would file a site-specific request with the FERC for any exceptions to the FERC Procedures to allow a 10-foot rather than 50-foot setback at any stream crossings. The rationale presented by WIC for any such exception is to decrease damage to riparian and upland habitats by not having to relay spoil back over a 50-foot distance (the FERC standard). WIC states that any 10-foot setback would eliminate extra movement of spoil by a track hoe, resulting in less habitat disturbance and decreasing construction time in the streambed. As indicated in WIC's Procedures, it would need to request site-specific approval prior to construction to allow a 10-foot setback at any waterbody crossing.

Procedures developed by WIC also indicate that extra workspaces would be located at least 50 feet away from the water's edge, except where the adjacent upland consists of actively cultivated or rotated cropland or other disturbed land. The Site-Specific Waterbody Crossing plans for the Little Snake, Yampa, and White Rivers indicate that a 10-foot buffer zone would be maintained at these crossings. **We recommend that in any comments on the draft EIS or in a separate document submitted prior to the closing of the draft**

EIS comment period, WIC file with the Secretary site-specific Waterbody Crossing Plans that clearly justifies any extra workspace that would be located less than 50 feet from the water's edge.

Water Supply Watersheds

The proposed route would not cross any protected public water supply watershed systems. The watersheds near Craig, Dinosaur, Meeker, and Rangely, Colorado are over 10 miles from the proposed pipeline corridor. There are no potable public water intakes located within 3 miles downstream of any of the perennial stream crossings. Drinking water sources at Maybell (downstream of the proposed Yampa River HDD crossing) consist entirely of privately owned domestic wells (Poirot 2005). Based on review of USGS topographic maps, the pipeline route would cross one aqueduct in Colorado at about MP 84. Given these conditions, no construction impacts on water supply watersheds would occur.

Water Quality. In order to minimize potential impacts on water quality, WIC would adhere to the measures contained in its Procedures, including, but not limited to: installing and maintaining sediment barriers to prevent silt-laden water from entering wetlands and waterbodies; restoring original contours; and revegetating disturbed areas.

The accidental release of hazardous materials (fuels, lubricants, and coolants) used by heavy equipment during pipeline construction could adversely affect aquatic species and contaminate surface water. WIC's SPCC Plan (WIC 2005a) would minimize the potential impact of spills of these hazardous materials. Furthermore, WIC would comply with NPDES permit requirements for water discharges associated with construction activity.

The proposed ROW closely parallels Spring Creek and Deception Creek at locations which are immediately upstream of the Yampa or White Rivers. Construction activities (including refueling, lubricating, and storage of hazardous materials) would take place in upland settings along the terraces paralleling these streams, and thus would likely be at least 100 feet from a waterbody or wetland crossing. However, a spill of potential surface water or groundwater contaminants could rapidly migrate down the steep terrace faces and onto the floodplains associated with these waterbodies, or into the waterbodies themselves. Given the proximity to the Yampa River or the White River, and the potential for significant adverse water quality impacts if a substantial spill entered either river, **we recommend that WIC should locate areas designated for refueling, parking or maintenance, or storage of fuels, lubricants, or hazardous materials a minimum of 100 feet from the upper edge (crest) of the stream terraces along Spring Creek and Deception Creek.**

No waterbodies crossed by the proposed pipeline route receive effluent from municipal or industrial wastewater treatment facilities within a 3-mile radius of the proposed crossing locations (EPA 2004c).

Sediment Contamination

The proposed pipeline route would not cross any watersheds containing areas of probable concern for sediment contamination (EPA 1997). Additionally, none of the waterbodies crossed by the pipeline route are known to contain contaminated sediments (Vranka 2004; Parker 2004).

Hydrostatic Test Water and Dust Control

To verify the integrity of the pipeline before placing it into service, WIC would conduct a series of hydrostatic tests as described in its Hydrostatic Test Plan (appendix E). These tests would involve filling the pipeline with water, pressurizing it, and then checking for pressure losses due to pipeline leakage. As currently proposed, the pipeline would be divided into multiple test sections. **Table 3.3-3** shows the sources of hydrostatic test water as being the Little Snake, Yampa, and White Rivers, as identifed in the plan. The approximate water volumes that would be required, the rate of withdrawal, and the duration of the use are also shown in the table. WIC has not stated the mechanism by which water would be procured for the testing, but since these waters are appropriated, WIC would likely purchase water from landowners owning water rights and work with the Colorado State Engineer for temporary use of the water.

Table 3.3-3
Currently Proposed Hydrostatic Test Water Volumes and Sources

Source	Location (MP)	Volume Withdrawn (gallons)	Volume Withdrawn (acre feet)	Maximum Withdrawal Rate (gallons per minute [gpm])	Maximum Withdrawal Rate (cubic feet per second)	Duration of Use
White River	127.7	2,417,290	7.4	2,500 gpm	5.6	90 days maximum
Yampa River	87.6	2,877,250	8.8	2,500 gpm	5.6	90 days maximum
Little Snake River	53.1	5,477,460	16.8	2,500 gpm	5.6	90 days maximum
Total Withdrawal		**10,772,000**	**33.0**			

Daily streamflows vary substantially in semi-arid regions, and can range over orders of magnitude, particularly during low-flow months. Depending on the timing of withdrawals and flow conditions in the river basins, water withdrawn for hydrostatic testing purposes could represent a substantial portion of the flow during the low-flow part of the year when withdrawals are planned. Withdrawals on the Little Snake and Yampa Rivers may affect designated surface water uses, including aquatic life and fisheries. Effects from water withdrawals from the Little Snake River could be further complicated by the recent completion of High Savery Dam, upstream of the proposed intake location.

WIC would minimize the potential effects of hydrostatic testing on surface water resources by adhering to the measures in WIC's Procedures and Hydrostatic Test Plan. To further minimize the impacts of hydrostatic testing on aquatic biota, **we recommend that WIC file prior to construction for review and approval a modified Hydrostatic Test Plan to include the following:**

a. **identify the precise location (on recent aerial photographs not to exceed a scale of 1:24,000) of proposed withdrawal and discharge locations;**

b. **clarify that all discharge locations will avoid all known cultural resource sites;**

c. **justify the rate of water withdrawal if it exceeds 5 percent of the surface flow at the time of withdrawal; and**

d. **install water intake regulation devices to regulate the rate of water withdrawal and to minimize the chance of impingement and entrainment of larval life-stages of native fish.**

Withdrawals on the Yampa and White Rivers would represent between 1 to 3 percent of the October and November average flows. For any particular day or week, however, withdrawals could represent substantially more of the river flow. Given available data, maximum withdrawal rates on the Little Snake River could remove all of the flow. Therefore, existing river conditions at the time of planned withdrawals would determine the extent of potential impacts to surface water flows and related resources. Because of this, **we recommend that WIC consult the appropriate state and federal fisheries agencies and the Colorado State Engineer to determine suitable flow conditions and locations for hydrostatic test water withdrawals and discharge locations. WIC should incorporate the outcome of this consultation in its revised Hydrostatic Test Plan.**

When hydrostatic testing is completed, WIC would release the water back into the basin from which it was withdrawn. If discharge rates of hydrostatic test water are not carefully controlled, discharges into surface waters could cause erosion of the streambanks and streambottoms, resulting in a temporary increase of sediment load and destruction of habitat. To minimize the potential for these effects, all hydrostatic test water would be discharged on upland areas through a certified weed-free hay or straw bale dissipation device, slowing the velocity to minimize potential erosion impacts and removing solids (appendix B). WIC would test discharge water quality to ensure that any contaminant levels would be within NPDES requirements. Depending on the site chosen and the distance from a channel, most or all of the discharged hydrostatic test water would infiltrate into the semi-arid upland soils before reaching a watercourse. WIC anticipates that mitigation for testing would include a form of compensation for water consumption.

Impacts on fisheries resources from sedimentation and water depletions (associated with hydrostatic test water withdrawals) are discussed in greater detail in sections 3.5 and 3.6.

Dust control operations would utilize water along the ROW, access roads, parking areas and other storage/refueling locations. Most or all of this water would be lost to other beneficial uses by evaporating and seeping into the ground surface. Currently, the sources of dust control water have been identified as being private landowners or small towns. Dust control water would not be removed from small creeks. The volume of dust control water needed is estimated by WIC as being approximately 12,000 gallons per day. Over the anticipated 90-day construction period, this would total approximately 3.3 acre-feet of water. Over such a time frame, this amount would not be likely to create impacts to water resources. However, the sources of dust control water may include existing wells, and water quality in some aquifer zones may not be suitable for subsequent seeding and revegetation efforts when applied to the proposed ROW. In order to ensure suitable withdrawals and water quality for plant growth, **we recommend that WIC file with the Secretary for review and written approval of the Director of the OEP data to characterize the quality of potential dust control water sources and any tackifiers prior to their use. All water or**

water/chemical mixes applied to areas to be revegetated must meet state or federal water quality standards for irrigated agricultural uses.

Overall, impacts to surface water resources from construction would be short-term and minimal. Construction would cause temporary increases in sediment transport, but these impacts would be minimized by setbacks, sediment barriers, and streambank stabilization. Waterbody crossings would normally be completed within several days, minimizing the duration of the effects.

Surface water would not be required for the operation of the pipeline and aboveground facilities. To minimize sedimentation and to prevent contamination of surface water resources from spills of hazardous materials associated with future maintenance activities conducted along the pipeline ROW, WIC would be required to adhere to construction and reclamation standards within their Plan, Procedures, and POD. Future variances from these plans and procedures would require the approval of the FERC, the affected land management agency, and affected landowner. Given the low probability of a pipeline leak (particularly a leak in a location that could enter surface water) and the physical and chemical properties of processed natural gas, adverse impacts on water resources from operations and maintenance are not expected.

3.3.3 Wetlands

Based on field wetland delineation surveys conducted by WIC, wetlands occupy approximately 0.9 mile (0.6 percent) of the 141.7-mile-long proposed pipeline (**table 3.3-4**). Of this distance, about 0.8 mile occurs in Colorado, and the remainder (0.06 mile) occurs in Wyoming. None of the aboveground facilities are located within wetlands delineated by WIC surveys or Nationwide Wetland Inventory (NWI) mapping.

Wetland vegetation communities occurring along the proposed project area include emergent and scrub-shrub wetland communities. The most common type of wetland along the proposed project area is emergent wet meadow. Emergent wetlands are dominated by rooted herbaceous vegetation, while scrub-shrub wetlands are dominated by woody species less than 20 feet in height. The shrub-scrub communities occur in narrow riparian bands along both sides of the Yampa River (MP 87.63), along Deception Creek upstream of the Yampa River (MP 97.23), and in a tributary to Bob Hughes Creek (MP 99.32). Common water sources for wetland communities include sub-irrigation in alluvial settings, springs at surface/bedrock interfaces, seepage from ditches and canals, irrigation runoff, and ponding in concave topography. Common wetland species identified along the pipeline route are included in section 3.4.

Based on the WIC field delineations, a total of 25 wetlands would be crossed by the proposed pipeline; 23 in Colorado and 2 in Wyoming. These wetlands are identified in appendix I and on the project maps located in appendix A. The vast majority of the wetlands crossed are characterized as emergent, with the remaining (roughly 10 percent) comprised of mixed emergent and scrub-shrub types. No farmed or forested wetlands would be crossed by the proposed project.

Construction in wetlands would primarily result in temporary effects including the temporary loss of wetland vegetation, soil disturbance, and temporary increases in turbidity and fluctuations in wetland hydrology. To minimize these impacts to wetlands, WIC would use a 75-foot-wide construction ROW through wetland

Table 3.3-4
Summary of Wetland Types Affected by Construction and Operation

State	NWI Wetland Classification[1]	Length of Wetland Crossed (miles)	Wetland Acreage Affected During Construction[2]	Wetland Acreage Affected During Operation[3]
WYOMING				
	PEM	0.06	0.45	0.27
Wyoming subtotal		**0.06**	**0.45**	**0.27**
COLORADO				
	PSS	0.02	0.17	0.11
	PEM	0.78	8.13	4.12
Colorado subtotal		**0.80**	**8.30**	**4.23**
Project Total				
	PSS	0.02	0.17	0.11
	PEM	0.84	8.58	4.39
	Overall	**0.86**	**8.75**	**4.50**

1 NWI Wetland Types
PSS – Palustrine scrub-shrub
PEM – Palustrine emergent

2 Wetland locations and types were generated from maps based on WIC field surveys. Disturbance estimates were based on the proposed pipeline ROW and extra workspaces.

3 Based on the amount of wetlands within the 50-foot-wide new permanent easement; however, because the wetlands are emergent and no vegetation maintenance is anticipated, no operational impact from the pipeline would occur except in areas designated palustrine scrub-shrub, where a permanent 10-foot-wide ROW would be maintained.

areas, would follow the measures identified in WIC's Procedures, and would locate the pipeline route immediately adjacent to existing utilities, where possible, to minimize impacts by overlapping the construction ROW along previously disturbed corridors.

Temporary use areas would be required at wetland crossings and, unless impractical due to topography or other constraint, these areas would typically be set back at least 50 feet from the edge of the wetland. While WIC's site-specific Waterbody Crossing Plan identifies a setback of less than 50 feet at the proposed Little Snake, Yampa, and White River crossings, deviations from the standard 50-foot setback would require approval of the FERC prior to construction.

After the pipeline is constructed, WIC has proposed to seed non-saturated wetlands with annual ryegrass in accordance with its Procedures. No lime or fertilizer would be used in wetland areas. While non-native annual ryegrass is not anticipated to persist in wetlands, the BLM has expressed concern that ryegrass could become established in nearby upland areas, particularly in wheat fields. Consequently, BLM may require WIC to use a commercial hybrid (sterile) cover crop for temporary stabilization and reclaim wetlands with native species. **We recommend that WIC file with the Secretary its project-specific Wetland Restoration Plan, indicating by MP how wetlands disturbed by project activities would be restored to pre-construction conditions, for review and written approval by the Director of OEP prior to commencing service. WIC should include the comments of the land management and state agencies with whom it consulted during plan development.**

Wetland vegetation would be temporarily lost during construction. A total of 8.75 acres of wetlands (8.30 acres in Colorado and 0.45 acre in Wyoming) would be affected by pipeline construction (**table 3.3-4**). In general, emergent wetland vegetation would be expected to reestablish within 3 years after construction, while scrub-shrub vegetation would take somewhat longer.

WIC would periodically remove woody species from wetlands to facilitate post-construction inspections of the permanently maintained pipeline ROW. A 30-foot-wide strip centered over the pipeline would be maintained clear of trees taller than 15 feet to facilitate pedestrian and aerial inspections. Additionally, a 10-foot-wide strip centered over the pipeline would be maintained clear of woody vegetation to allow vehicles rapid access along the ROW in case of emergencies. As a result, operational impacts in wetlands would result in the conversion of about 0.1 acre of scrub-shrub wetland to herbaceous wetland within the 10-foot-wide maintained strip (**table 3.3-4**).

3.4 Vegetation

3.4.1 Vegetation Communities

Vegetation Communities

Four general vegetation communities characterize the proposed Piceance Project area: grassland, shrubland; agricultural land; and woodlands (**table 3.4-1**, **figure 3.4-1**). The two predominant vegetation communities that are crossed by the proposed pipeline route are shrubland and woodland, comprising 81 and 10 percent of the vegetated lands based on acres of disturbance, respectively. Open water and waterbodies (including dry washes, discussed in section 3.3.2), commercial land, and areas with bare rock account for less than 1 percent of the disturbance along the proposed pipeline route and do not display vegetation characteristics; consequently, they are not discussed in this section of the draft EIS (see section 3.7).

Construction of the proposed pipeline and aboveground facilities would disturb approximately 78 acres of grasslands, 1,545 acres of shrublands, 99 acres of agricultural land, and 187 acres of woodlands (**table 3.4-2**). The primary impact of the proposed project on vegetation would be the cutting, clearing, and/or removal of existing vegetation within the construction work area. Temporary ROW and additional temporary workspace areas cleared for construction would be reseeded and allowed to revegetate naturally with tree and shrub species after construction was completed.

To minimize environmental impacts and ensure site stabilization and revegetation, WIC would follow construction procedures detailed in its POD, including its Plan and Procedures with approved variances. The Plan and Procedures (in conjunction with the WIC Reclamation Plan [appendix D]) describe methods that would be implemented to stabilize disturbed sites by reducing runoff and erosion; to reestablish a vegetation condition comparable to preconstruction conditions; to restore functional qualities of the area including wildlife habitat and livestock forage; and to prevent degradation of areas off the construction ROW. Additionally, WIC would follow the measures outlined in the SPCC Plan (WIC 2005a) and the SWPPP (WIC 2005c) to minimize and mitigate potential impacts to wetlands.

Upon completion of construction, disturbed areas would be revegetated in compliance with WIC's Plan or in accordance with specific requirements from applicable federal, state, and local agencies. Timely stabilization of the construction ROW and reseeding with an appropriate seed mix would minimize the duration of vegetation disturbance. The FERC and BLM staff would inspect the pipeline ROW for several years to ensure WIC's compliance with revegetation standards established in WIC's Plan and Procedures.

After construction, the vegetation along the majority of the pipeline ROW would be allowed to revert to preconstruction conditions. WIC would reduce the width of the permanently maintained ROW in woodland areas (i.e., pinyon-juniper); however, given the long recovery period for woodlands, maintenance of vegetation in the future would be nominal. Impacts to vegetation from permanent aboveground facilities would be limited to those required for the operation of pigging facilities and MLVs (1 acre of sagebrush shrubland and <1 acre of pinyon-juniper woodland).

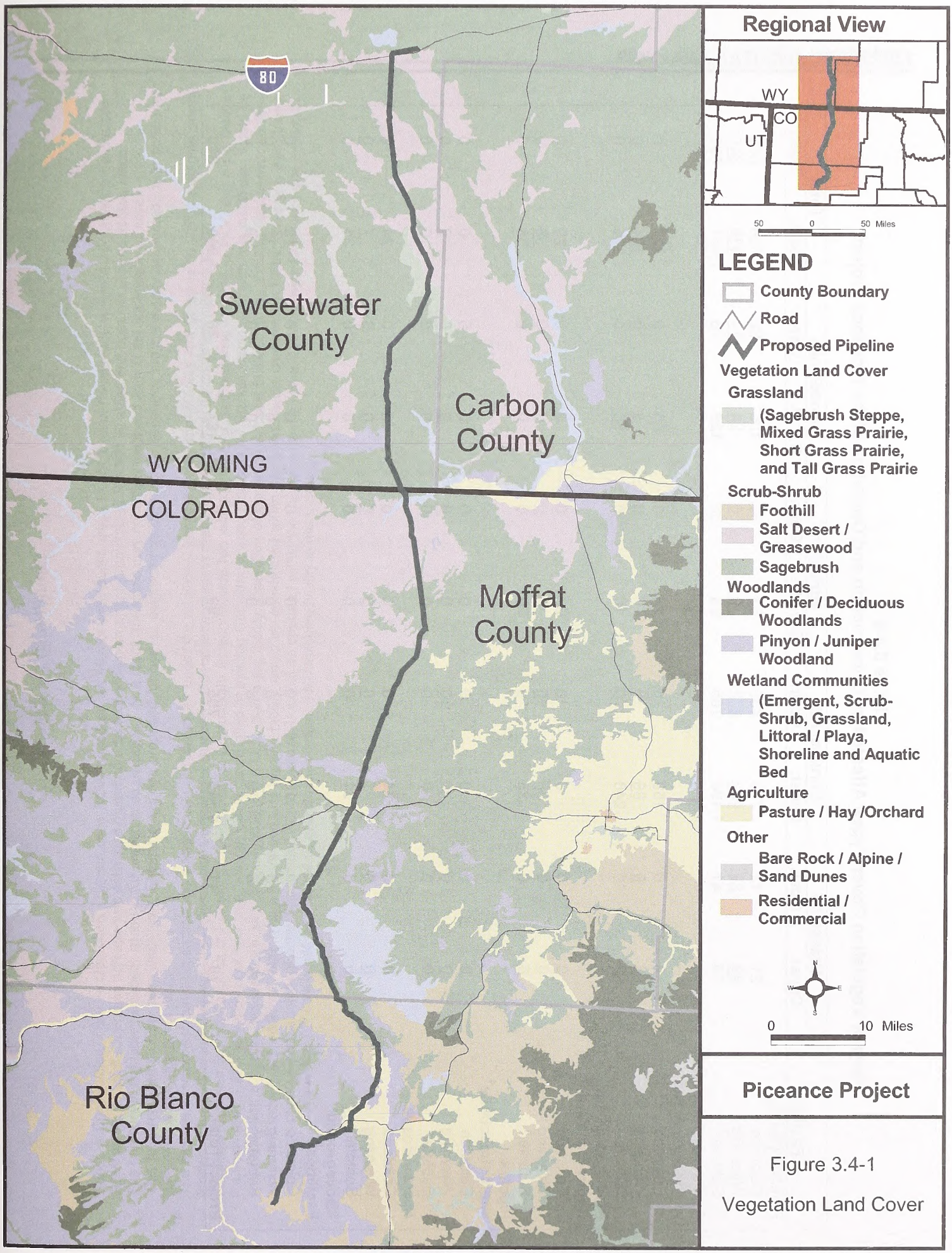
Table 3.4-1
Vegetation Communities Crossed by the Piceance Project Pipeline

Community Designation	Milepost[1] (MP)	Vegetation Sub-Community[2]	General Description	Common Species
Grassland	21-25 95-97	Sagebrush steppe	• Combination of shrubs and grasses where grasses are 50 percent or more of the species composition. • Density and variety of species in the community is greatly affected by fire suppression.	big sagebrush, black sagebrush, broom snakeweed, rabbitbrush, prickly pear, mountain mahogany, ephedra, fourwing saltbush, winterfat, blue grama, bottlebrush squirreltail, Indian ricegrass, needle and thread grass, western wheatgrass, cheatgrass, Great Basin wildrye, yarrow, viscid rabbitbrush, and mountain snowberry
Shrub-scrub	0-21, 25-44, 45-48, 49-51, 53-87, 88-95, 97-109, 110-118, 121-123, 124-126, 128-129, 130-132, 139-142	Sagebrush	• Combination of dense sagebrush, with a sparse understory of grasses, forbs, and smaller shrubs (<50 percent cover). • Occurs throughout central and western Wyoming and northwestern Colorado.	big sagebrush, black sagebrush, sand sagebrush, broom snakeweed, rabbitbrush, prickly pear, mountain mahogany, horsebrush, spiny hopsage, ephedra, saltbush, Indian ricegrass, needle and thread grass, western wheatgrass, Great Basin wildrye, crested wheatgrass, cheatgrass, and yarrow
		Salt desert scrub/greasewood	• Occurs as a mosaic within sagebrush communities, dominated by greasewood. • Found throughout central and western Wyoming and northwestern Colorado.	greasewood, saltbush, spiny hopsage, budsage, winterfat, and western wheatgrass
		Foothill shrub-scrub	• Mountain mahogany found within northern mixed prairie and short grass prairie habitats. • Gambel oak extends from Colorado into Wyoming on the western slope of the Rocky Mountains.	mountain mahogany, scrub oak (Gambel oak), serviceberry, mountain snowberry, western wheatgrass, and elk sedge
Agriculture	87-88, 109-110, 118-121, 126-128	Pasture/ hay/ orchard	• Natural vegetation is not evident. • Land currently used for grazing or horticulture.	irrigated hay and alfalfa fields, livestock feeding areas, horticultural areas

Table 3.4-1 (Continued)

Community Designation	Milepost[1] (MP)	Vegetation Sub-Community[2]	General Description	Common Species
Woodlands	44-45, 48-49, 51-53, 123-124, 129-130, 132-139	Pinyon-juniper woodland	• Commonly found on dry ridge tops with shallow soils. • Highly competitive and supports a highly variable understory. • Pinyon component increases at higher elevations.	Colorado pinyon pine, Utah juniper, one-seed juniper, Rocky Mountain juniper, big sagebrush, black sagebrush, mountain mahogany, snakeweed, bitterbrush, little rabbitbrush, Sandberg bluegrass, needle and thread grass, Indian ricegrass, squirreltail, western wheatgrass, stemless golden weed, oval buckwheat, yellow-eye cryptantha, scarlet gilia, dwarf cateye, brittle prickly pear, claretcup, and heartleaf twistflower
Wetlands[3]	39, 10, 53, 69, 84, 87, 97, 99, 100, 106, 107, 111	Emergent	• Dominated by rooted herbaceous vegetation.	baltic rush, inland saltgrass, alkali sacaton, sedges, bluejoint reedgrass, and bent grass
		Scrub-shrub	• Scrub-shrub wetlands are dominated by woody vegetation less than 20 feet in height.	willow, thinleaf alder, river birch, and red-osier dogwood
		Littoral/playa	• Most obvious in spring due to snowmelt, precipitation, and high water table. • Wetlands that have been dry for over a year frequently have a thin layer of grasses and forbs on the bottom.	Due to their ephemeral nature, the entire composition of these wetlands can change over short periods of time.
		Shoreline and aquatic bed	• Found adjacent to or located within surface waters.	narrowleaf cottonwood, salt cedar, willow, thinleaf alder, river birch, red-osier dogwood, wild rose, serviceberry, and snow berry

[1] Mileposts are broad generalizations. See appendix A for more detailed vegetation description by milepost.
[2] Sub-communities indicated in this table are shown in **figure 3.4-1.** Wetlands are listed as presented in appendix I.
[3] Wetland communities are delineated by vegetation type.



Piceance Project

Figure 3.4-1

Vegetation Land Cover

4/4/05

Table 3.4-2
Acres of Vegetation Cover Types Affected by Construction and Operation of the Piceance Project

Facility	Grassland		Shrub-scrub		Agriculture		Woodlands		Total	
	Const.	Oper.	Const.	Oper.	Const.	Oper.	Const.	Oper.	Const.	Oper.
Pipeline (main)[1]										
Colorado	21	12	736	433	63	38	105	62	926	545
Wyoming	49	29	462	272	0	0	24	14	535	315
Subtotal[2]	70	41	1,198	705	63	38	129	76	1,461	860
Additional Temporary Workspace Areas										
Colorado	2	0	159	0	16	0	50	0	227	0
Wyoming	6	0	89	0	0	0	8	0	104	0
Subtotal[2]	8	0	248	0	16	0	58	0	331	0
Pipe Storage and Contractor Yards[3]										
Colorado	0	0	0	0	20	0	0	0	20	0
Wyoming	0	0	38	0	0	0	0	0	38	0
Subtotal[2]	0	0	38	0	20	0	0	0	58	0
Pipeline Interconnections[4]										
Colorado	0	0	0	0	0	0	0	0	0	0
Wyoming	0	0	0	0	0	0	0	0	0	0
Subtotal[2]	0	0	0	0	0	0	0	0	0	0
Access Roads										
Colorado	0	0	24	0	0	0	0	0	24	0
Wyoming	0	0	7	0	0	0	0	0	7	0
Subtotal[2]	0	0	31	0	0	0	0	0	31	0
Aboveground Facilities[5]										
Colorado	0	0	18	0	0	0	0	0	18	0
Wyoming	0	0	11	0	0	0	0	0	11	0
Subtotal[2]	0	0	29	0	0	0	0	0	29	0
Project Total[2]	**78**	**41**	**1,545**	**705**	**99**	**38**	**187**	**76**	**1,909**	**860**

Table 3.4-2 (Continued)

1 Const. – Construction. Oper. – Operation. Construction ROW based on an 85-foot-wide construction ROW, except in wetlands where a 75-foot-wide construction ROW would be used. Operation acreage was estimated based on a 50-foot-wide permanently maintained ROW in all areas and does not include access roads.

2 The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the exact sum of the addends in all cases.

3 This total represents offline pipe yards only. Staging areas are proposed for use as contractor yards; land requirements are previously accounted for in additional temporary workspace areas row.

4 The pipeline interconnect construction acreage is previously accounted for under the additional temporary workspace areas row (associated with the staging areas located at the CIG Wamsutter and CIG Greasewood Compressor Stations). Operation acreage is previously accounted for under the pipeline ROW.

5 Facilities proposed for installation at the existing CIG Wamsutter Compressor Station include two interconnections, two metering stations, a MLV, and a pig facility. Approximately 1,650 horsepower of new compression would be installed at existing CIG Greasewood Compressor Station. Concurrent with this installation would be the installation of two interconnections, two metering stations, a MLV, and a pig facility. Operation of the proposed new facilities at the existing compressor stations would not require any additional land. Nine MLVs and one pigging facility would be constructed within the 85-foot-wide construction ROW; therefore, disturbance acreage is previously accounted for under the pipeline ROW. Each MLV would be operated within the permanently maintained 50-foot-wide ROW with one exception. At MP 54, an additional 0.1 acre would be required to operate the combined MLV/pigging facility at this location.

Grassland

Grassland occurs along approximately 7 miles (78 acres, less than 5 percent) of the proposed pipeline route, with sagebrush steppe being the dominant sub-community. Sagebrush steppe is semi-closed steppe characterized by an overstory of sagebrush and understory of grasses, forbs, and smaller shrubs. Grass species comprise more than 50 percent of the species composition in this community; big sagebrush is the dominant shrub component throughout.

Long-term impacts may occur on sagebrush steppe, as well as native grasslands and shrublands. Recovery of these habitats may take a minimum of 5 to 7 years due to poor soil and low moisture conditions.

Shrub-scrub

Shrubland accounts for approximately 116 miles (1,545 acres, 81 percent) of vegetation cover that would be crossed by the pipeline route. This community designation includes sagebrush, salt desert shrub/greasewood, and foothills shrub-scrub sub-communities. Sagebrush is the most widespread shrubland sub-community. This vegetation type is characterized by an overstory of big sagebrush and an understory of grasses, forbs, and smaller shrubs. Salt desert shrub/greasewood occurs as a mosaic within sagebrush communities, frequently on the fringes of playas, desert lakes, ponds, rivers, and streams. Foothills shrub-scrub communities consist of both mountain mahogany and scrub oak sub-communities. This deciduous shrub forms dense thickets with sparse understory vegetation. It typically occurs on rocky or shallow soils and is often associated with a limestone, sandstone, or shale substrate. In oak scrub, Gambel oak is the dominant shrub, comprising more than a quarter of the total vegetation cover. This sub-community occurs along the length of the project, extending from Colorado into Wyoming on the western slope of the Rocky Mountains.

Long-term construction impacts may occur on shrublands, such as sagebrush. Recovery of these habitats may take a minimum of 20 to 30 years due to poor soil and low moisture conditions.

Agriculture

Agricultural land occurs along about 6 miles (99 acres, less than 5 percent) of the proposed pipeline route. This community is primarily comprised of irrigated hay and alfalfa fields. These areas are used primarily for livestock grazing.

Pasture and hayfields would typically regenerate quickly after cleanup and reseeding of the construction ROW, typically within 2 years. WIC would reseed pasture and hayfields with seed mixes as requested by the landowner to restore the area to preconstruction conditions. WIC would not reseed cultivated agricultural areas unless requested by the landowner.

Woodlands

Woodlands occur along approximately 13 miles (187 acres, 10 percent) of the proposed pipeline route. Woodland sub-communities include pinyon-juniper and riparian woodland. Colorado pinyon pine and Utah

juniper dominate the pinyon-juniper woodland plant community. The pinyon-juniper sub-community is highly competitive and supports a highly variable understory. The pinyon component of this sub-community increases at higher elevations. The riparian woodland sub-community occurs adjacent to surface waters and is characterized by the presence of narrow leaf cottonwood and willow.

Clearing of woodland vegetation within the construction ROW would result in long-term and permanent impacts. In this region, it is anticipated that regrowth of woodlands to mature conditions could take between 50 to 100 years, depending on the species (long-term impact). Permanent impacts to woodlands would be limited to the permanent corridor, which WIC would maintain in an herbaceous state by occasional mowing or brush clearing.

The project would be adjacent to, but would not cross riparian woodlands at the White River crossing. According to WIC's site-specific Waterbody Crossing Plan, construction would avoid large trees at this crossing.

While impacts resulting from construction of the Piceance Project would result in the long-term and permanent loss of woodland vegetation, the effects would be small relative to the available habitat in the region. The project also would cause a small, incremental increase in woodland fragmentation.

Unique, Sensitive, and Protected Vegetation Communities

No additional unique, sensitive, or protected vegetation communities have been identified within the project area.

3.5 Fish and Wildlife

3.5.1 Fishery Resources

The proposed route would cross four perennial waterbodies that support fisheries, including one that supports warmwater fisheries and three that support coldwater fisheries. These fisheries are all in Colorado; no perennial waterbodies would be crossed in Wyoming. Waterbodies that provide persistent habitat or are being managed for game fish species are in **table 3.5-1**. No waterbodies are present within the boundaries of the proposed aboveground facilities; thus, there would be no impacts on fisheries at these locations.

Table 3.5-1
Perennial Fisheries Crossed by the Proposed Piceance Project

Waterbody	Milepost	Fishery Classification	Maximum Crossing Width (feet)	Number of Times Crossed	Crossing Method
Little Snake River	53.1	Coldwater	40	1	HDD
Yampa River	87.6	Warmwater	140	1	HDD
White River	127.7	Coldwater	75	1	HDD
Dry Fork Piceance Creek	135.0	Coldwater	<10	1	Flume or Dam and Pump

Representative game fish species that occur in the vicinity of the proposed crossing of the Yampa River include smallmouth bass and northern pike. Other non-game fish species having the potential to occur in the Yampa River near the proposed pipeline route include carp, fathead minnow, speckled dace, redside shiner, and bluehead sucker. Representative game species that occur in the White River include mountain whitefish, rainbow trout, brown trout, northern pike, channel catfish, and green sunfish. The Little Snake River supports a limited number of mountain whitefish and rainbow trout east of the proposed crossing below Baggs, Wyoming. Dry Fork Piceance Creek supports brook trout in non-drought years. Representative non-game species that occupy the White River, Little Snake River, and Dry Fork Piceance Creek include roundtail chub, speckled dace, redside shiner, and flannelmouth sucker.

No waterbodies affected by the project contain or have the potential to contain species managed by the National Marine Fisheries Service, nor do they support essential fish habitat (EFH) as defined under the Magnuson-Stevens Fishery Conservation and Management Act. Therefore, the Piceance Project would not affect EFH.

State wildlife agencies have expressed concerns about open-cut construction across some waterbodies. In response to these concerns, WIC has prepared a site-specific Waterbody Crossing Plan (appendix F) that would supplement its Procedures. We have reviewed this plan and believe it would help minimize sedimentation and ensure channel bank stabilization.

Construction-related impacts on fisheries would be primarily dependent on season of construction, duration of in-stream activities, and stream crossing methods. As stated in WIC's Procedures, construction activities

at coldwater fisheries would occur from June 1 to September 30, and from June 1 to November 30 for warmwater fisheries, unless otherwise permitted or restricted by the CDOW. We note that the CDOW has indicated that instream construction should be avoided between May 15 and September 15. We further note that based on WIC's proposed construction schedule (beginning October 1), WIC would not be able to cross Dry Fork Piceance Creek within the time frame mentioned in its Procedures. Thus, WIC would not be authorized to cross the Dry Fork Piceance Creek until a variance is granted by FERC or if the crossing method where changed to HDD. The HDD crossing of the Little Snake and White Rivers could be constructed outside of the coldwater fisheries window, as long as there are no in-stream impacts.

The Dry Fork of Piceance Creek would be crossed using a dry crossing technique in accordance with WIC's Procedures. The Little Snake, White, and Yampa Rivers would be crossed by HDD. If successful, an HDD crossing would result in no impact on fisheries. All non-HDD methods would increase sediment loads and turbidity that could affect fishery resources. Increased sediment loads can alter a stream's substrate composition and fill interstitial spaces and pool habitats. Increased sediment loads can degrade the existing aquatic habitat by reducing spawning habitat, available rearing habitat, and benthic invertebrate production (the primary food supply of many fish). Increased sediment loads also can affect fish populations by suffocating eggs and newly hatched larvae living in gravels and by abrading sensitive gill membranes of both young and adult fish. However, an open-cut crossing is typically the quickest crossing method, involving 1 day or less of in-stream construction for the waterbodies crossed by the Piceance Project. Therefore, sedimentation and turbidity resulting from construction would be short term and generally limited to periods of active construction within a waterbody. Adverse effects to aquatic biota would tend to be localized. Further, most of the waterbodies that would be crossed are intermittent, and crossing such waterbodies would have little to no impact on fisheries.

To minimize impacts associated with sedimentation and turbidity during open-cut, flume, or dam-and-pump waterbody crossings, WIC would adhere to its Procedures, which ensure that WIC would store trench spoil at least 50 feet from streambanks, use sediment barriers such as silt fence to prevent or significantly reduce runoff into streams, and complete construction as quickly as possible to shorten the duration of sedimentation and turbidity. Following completion of construction, WIC would immediately stabilize the construction site, including the streambanks (see also our recommendation regarding bank stabilization in section 3.3.2). If circumstances required a construction delay, WIC would employ adequate site stabilization measures in accordance with its Procedures and permit conditions.

A potential leak or rupture under the White, Little Snake, and Yampa Rivers during drilling could accidentally release muds (called a "frac-out") or disturb bottom sediments in a localized area near the rupture site. The release of drilling muds (primarily bentonite and cellulose) could cause localized increases in sediment loads and could fill interstitial gaps in the streambed, smothering habitat for benthic invertebrates, larval fish, and eggs. The amount of area impacted by a release of drilling muds would be relatively small since the consistency of the drilling muds would limit widespread dispersal along the streambed. To reduce the impacts of a frac-out, we have recommended in section 3.3.2 that WIC prepare a HDD Plan that identifies detection and monitoring procedures, response equipment, notification procedures, and corrective actions.

Clearing and grading of vegetation within the construction ROW and additional temporary workspace areas during construction could increase erosion along streambanks and turbidity levels in the waterbodies, as

well as cause localized changes in water temperature and light penetration, which could affect aquatic habitat, primary and secondary production, and fish use patterns. As stated in WIC's Procedures (V.B.2.c and VI.B.2.g), clearing of vegetation between extra work areas and the edge of waterbodies would be limited to the certificated ROW, and tree stump removal and grading activities would be limited to the trenchline only. Alteration of the natural drainages or compaction of soils by heavy equipment near streambanks during construction could accelerate erosion of the banks, runoff, and the transportation of sediment into waterbodies. The degree of impact on aquatic organisms due to erosion would depend on sediment loads, stream velocity, turbulence, streambank composition, and sediment particle size. Additionally, localized changes in water temperature and light penetration caused by the removal of boulders, woody debris, streambank vegetation, and undercut banks could temporarily displace fish that utilize these features for cover, nesting, and feeding. However, these impacts would be temporary and relatively minor due to the limited amount of total stream bank area affected per waterbody.

To minimize impacts associated with streambank erosion during construction, WIC would use equipment bridges, mats, and pads to support equipment that would cross the waterbody or work in saturated soils adjacent to the waterbody. In accordance with its Procedures and where topography allows, WIC would locate additional temporary workspace areas at least 50 feet from the edge of flowing waterbodies, except where site-specific approval has been granted, and limit clearing of vegetation between additional temporary workspace areas and the edge of the waterbody to the certificated construction ROW. WIC would implement erosion and sediment control measures (e.g., silt fence) to minimize erosion and prevent sediments from leaving the construction site and entering waterbodies. WIC anticipates completing in-stream construction activities for open-cut waterbody crossings within 12 hours, further minimizing sedimentation and channel instability impacts to fishes and their habitats.

The withdrawal and discharge of hydrostatic test water also could affect fisheries (see also section 3.3.2). WIC has identified the White River (MP 127.7), Yampa River (MP 87.6), and Little Snake River (MP 53.1) as the sources of hydrostatic test water. Procedures to avoid uptake of organic debris or entrainment of aquatic species during water withdrawals are discussed in section 3.6.3. WIC would not use chemical additives during hydrostatic testing. WIC has proposed to return hydrostatic test water to open ground areas within the same basin as the withdrawal, rather than discharging directly into surface waters. Further discussion of hydrostatic test water withdrawals and associated impacts on federally listed species is included in section 3.6.3.

A direct spill of fuel, drilling fluids, or other hazardous materials into a waterbody could adversely affect aquatic resources. To minimize the potential for spills, WIC would implement its SPCC Plan, which specifies preventive measures such as personnel training, equipment inspection, and refueling procedures to reduce the likelihood of spills, as well as mitigative measures, such as containment and cleanup, to minimize potential impacts should a spill occur. The SPCC Plan restricts the location of fuel storage, fueling activities, and construction equipment maintenance along the construction ROW and provides procedures for these activities. Training and lines of communication to facilitate the prevention, response, containment, and cleanup of spills during construction activities also are described in the SPCC Plan.

Adherence to the SPCC Plan would prevent a large spill from occurring near surface waters because fuels storage and construction equipment fueling by mobile tankers or mobile tanks is prohibited within 100 feet of

the waterbody bank. If a small spill were to occur, adherence to measures in the SPCC Plan would decrease the response time for control and cleanup of the spill, thus avoiding or minimizing the effects of a spill on aquatic resources.

3.5.2 Wildlife Resources

The predominant wildlife habitats along the proposed pipeline route consist of grassland, shrub-scrub (sagebrush, salt desert shrub/greasewood, foothill shrub-scrub), woodlands (pinyon-juniper), wetlands, and agricultural land. These vegetation types support a diversity of wildlife species. This section focuses on species of high economic and/or recreational importance and those that are considered sensitive to human disturbance.

In total, construction activities would result in the incremental long-term disturbance of approximately 1,909 acres of wildlife habitat. However, due to the linear nature of the Piceance Project over a large geographic area, this acreage represents far less than 1 percent of the available wildlife habitat on a regional basis.

Potential impacts to terrestrial wildlife species from the proposed Piceance Project can be classified as short term, long term, and permanent. Short-term impacts consist of activities associated with project construction and changes in wildlife habitats lasting less than 5 years. Long-term impacts would consist of changes to wildlife habitats lasting 5 years or more. Permanent impacts result from construction of aboveground facilities that convert natural habitat to natural gas operations. The severity of both short- and long-term impacts would depend on factors such as the sensitivity of the species impacted, seasonal use patterns, type and timing of project activities, and physical parameters (e.g., topography, cover, forage, climate).

Less mobile or burrowing species may be killed as a result of crushing from construction vehicles and equipment. Other potential impacts include habitat loss or alteration, habitat fragmentation, and animal displacement. Individuals may be permanently displaced and perish due to increased competition or other effects of being forced into sub-optimal habitat. Indirect impacts from increased noise and additional human presence also could lead to displacement and lowered fitness. Although the habitat adjacent to the construction zone may support some displaced animals, any species that is at or near its carrying capacity could exhibit increased localized mortality.

Habitat fragmentation is frequently a concern when clearing ROWs. In general, fragmentation can result in an altered wildlife community as species more adaptable to edge habitats establish themselves, while species requiring undisturbed habitats are subject to more negative effects. However, fragmentation disturbance to wildlife and wildlife habitats from the proposed Piceance Project is not expected to be significant because a majority of the construction would be adjacent to or overlap an existing cleared natural gas ROW. Thus, new edge habitat would replace existing edge habitat. In addition, most of the pipeline would cross relatively open habitat types (e.g., grassland, agriculture, shrubland). As such, we believe the effects of habitat fragmentation would not be significant.

Trenching activities could hinder the movement of livestock, horses, and/or wildlife. Among other measures, WIC has committed to install trench plugs across the trench where it crosses livestock trails to allow

passage. Additionally, ramps would be installed to allow for the escape of livestock, horses, and wildlife should they fall into the trench. To further minimize potential impacts to animals, **we recommend that WIC place earthen trench plugs, with ramps on either side, at 1-mile intervals along the trench, as well as at well-defined livestock and wildlife trails intersected by the trench. WIC also would leave breaks in the strung and welded pipe, topsoil, and spoil piles at locations that correspond to the earthen trench plugs to allow movement of wildlife and livestock across the construction ROW. WIC should consult with the BLM regarding specific placement of trench plugs and ramps on land managed by the BLM.**

Operation of the proposed pipeline would require the permanent maintenance of a 50-foot-wide ROW corridor. In wetlands, a 50-foot-wide ROW would be maintained clear of trees taller than 15 feet, with 10 feet of this permanent ROW maintained clear of all woody vegetation. In addition, 1.2 acres associated with aboveground pipeline facilities (e.g., pig launcher/receiver and MLVs) would be permanently converted for natural gas operations. As a result, approximately 859 acres of wildlife habitat would experience incremental long-term or permanent impacts. These acreages represent far less than 1 percent of available wildlife habitat on a regional basis. In many cases, the acres affected by operational impacts would be included in the acres of long-term impacts attributed to construction, given the long recovery period of vegetation in the region.

Operation of the pipeline also could result in future surface disturbance activities due to maintenance of the pipe (e.g., pothole inspections, repair of pipe, replacement of rectifier beds). We do not anticipate that noise levels from operation of the proposed CIG Greasewood Compressor Station and/or CIG Wamsutter Compressor Station modifications would result in a significant impact on wildlife resources. WIC would follow its POD and other measures referenced in this draft EIS to minimize impacts to wildlife and their habitats during pipeline operation.

Big Game

The primary big game species that occur within the project area are elk, mule deer, and pronghorn antelope (pronghorn). White-tailed deer also could be present. Certain habitat ranges for these species are considered crucial for maintenance of game populations. In Wyoming, the Wyoming Game and Fish Department (WGFD) and the BLM have established several categories based on seasonal use of the habitat. For example, crucial winter range areas are considered essential in determining a game population's ability to maintain itself at a certain level over the long term. Other regions may not usually be a part of a herd's range, but are used as survival areas during extremely harsh winters. Likewise, the CDOW has identified critical winter habitat ranges for elk, mule deer, and pronghorn in Colorado. **Table 3.5-2** summarizes the linear miles and acreage of disturbance that would occur within important big game ranges along the project route.

Elk inhabit a variety of habitats along the project route including grassland, shrubland, pinyon-juniper woodland, and, to a lesser extent, agricultural and pasture lands. Approximately 32.7 miles of winter range for elk would be crossed by the project ROW in Rio Blanco and Moffat Counties in western Colorado. This accounts for two critical winter range areas identified by CDOW as having a No Activity restriction between

December 1 and April 15 (Petch 2005). One area occurs in Moffat County from the vicinity of Mud Spring Draw to the mouth of Deception Creek Canyon. A portion of this critical area is located on the Bitter Brush State Wildlife Area (SWA). The second area encompasses the area from the White River to the CIG Greasewood Compressor Station in Rio Blanco County. No elk crucial winter range would be crossed by the project ROW in Wyoming.

Table 3.5-2
Crucial/Critical Big Game Habitats Affected by the Piceance Project

State/Habitat Type	Milepost Locations	Total Length Crossed (miles)	Acreage Affected During Construction[1]	Acreage Affected by Permanent Facilities[2]
COLORADO[3]				
Elk, Mule Deer, and Pronghorn Critical Winter Habitat	82.0 to 99.0	17.0	455	<1
	126.0 to 141.7	15.7		
WYOMING[4]				
Mule Deer Crucial Winter Habitat	48.5 to 51.9	3.4	42	0
Pronghorn Crucial Winter/Yearlong Habitat	0.0 to 3.1	3.1	104	0
	47.5 to 51.9	4.4		

1 Based on a 85-foot-wide construction ROW, aboveground facilities, and additional extra workspace areas, but does not include pipe contractor yards or temporary access roads.
2 Permanent aboveground facilities impacting crucial big game habitats is represented by one MLV in Moffat County.
3 Colorado Source: Petch 2005.
4 Wyoming Source: WGFD 2005.

Mule deer occur throughout the majority of the project region, inhabiting virtually all vegetation types, but reach the greatest densities in shrublands on rough, broken terrain, which provide abundant browse and cover. Critical winter range for mule deer in Colorado are the same as described above for elk. In addition, approximately 3.4 miles of crucial winter range would be crossed by the project route in Sweetwater County in Wyoming.

Pronghorn are generally found in prairie grassland and semi-desert shrubland habitats on flat to rolling terrain with good visibility. They are most abundant in short- or mid-grass prairies and are least common in xeric habitats. Critical winter range for pronghorn in Colorado are the same as described above for elk and mule deer, including two important winter ranges, as described above for elk. In addition, approximately 7.5 miles of crucial winter/yearlong range would be crossed by the Piceance Project route in Sweetwater County in Wyoming.

In Colorado, the proposed pipeline route would cross two SWAs, the Piceance SWA and Bitter Brush SWA, owned by the CDOW. The Piceance SWA would be crossed by the pipeline ROW at two locations (MP 31.7 to MP 134.2, and MP 134.7 to MP 135.4) in the area immediately south of the White River. The Bitter Brush SWA is located along Deception Creek, south of the Yampa River. The Bitter Brush SWA constitutes a

portion of one of the big game critical winter range areas described above. No Wildlife Habitat Management Areas would be crossed by the proposed route in Wyoming. These state lands are discussed further in section 3.7.1.

Construction impacts to big game species (elk, mule deer, and pronghorn) would include the incremental loss of potential forage (native vegetation and previously disturbed vegetation) and would result in an incremental increase in habitat fragmentation within the proposed surface disturbance areas. However, as noted above, these incremental losses of vegetation would represent only a small percent of the overall available habitat within the broader project region. The loss of native vegetation would be long-term (greater than 5 years and, in some cases, more than 20 years). In the interim, herbaceous species may become established within 3 to 5 years, depending on future weather conditions and grazing management practices that would affect reclamation success in the project region. In most instances, suitable habitat adjacent to the disturbed areas would be available for wildlife species until grasses and woody vegetation were reestablished within the disturbance areas.

Indirect impacts would result from increased noise levels and human presence during surface disturbance activities. Big game animals (especially pronghorn and mule deer) likely would decrease their use within 0.5 mile of surface disturbance activities (Ward et al. 1980; Ward 1976). This displacement would be short-term and animals would return to the disturbance area following construction activities. However, assuming the adjacent habitats are at or near carrying capacity, and given the current drought conditions in the project region, displacement of wildlife species (e.g., big game) as a result of construction could cause some unquantifiable reduction in wildlife populations.

Construction activities occurring within the proposed ROW would result in the long-term incremental disturbance of approximately 455 acres of critical winter habitat for elk, mule deer, and pronghorn in Colorado. In Wyoming, construction activities along the proposed ROW would result in the long-term incremental disturbance of approximately 42 acres of mule deer crucial winter/yearlong habitat, and approximately 104 acres of pronghorn crucial winter/yearlong habitat.

In Colorado, construction activities also would result in the long-term incremental reduction of approximately 64 acres of habitat in the Piceance SWA and approximately 35 acres of habitat in the Bitter Brush SWA in Rio Blanco and Moffat Counties, respectively. A portion of the Bitter Brush SWA that would be crossed by the proposed ROW includes elk, mule deer, and pronghorn winter habitat as discussed above. On a regional basis, these acreages of disturbance would represent a small percentage (less than 1 percent) of the overall available habitat within these areas.

In accordance with the Colorado BLM and CDOW recommendations, WIC would avoid critical winter range for elk, mule deer, and pronghorn between December 1 and April 30, from MP 126.0 to MP 141.7. The other area at the Bitter Brush SWA and north of the Yampa River (MP 82.0 to MP 99.0), is complicated by the need to mitigate archaeological concerns in the area. Although archeological mitigation may be authorized to begin following any certification by the FERC and following completion of the Section 106 process, it is unknown at this point whether archaeological mitigation could be completed in time to have a mini-crew start and finish construction in this reach. WIC has submitted a letter to the CDOW requesting a variance to the No Activity restriction. WIC would not be authorized to construct in a CDOW or BLM No Activity location

during restricted dates without approval from the CDOW and BLM. BLM has indicated that major variances to the winter range timing restriction are unlikely. If construction cannot be completed by December 1 within the critical big game winter range areas listed above, BLM has indicated that the construction schedule should be adjusted accordingly.

In accordance with the recommendations of the Wyoming BLM and WGFD, WIC would avoid crucial big game winter habitat between November 15 and April 30. WIC would not be authorized to construct within this exclusion window in crucial winter habitat (MP 0.0 to MP 3.1, and MP 47.5 to MP 51.9) without approval from the WGFD and BLM.

Operational activities occurring from permanent aboveground facilities (i.e., compressor stations, pigging facilities, metering stations, and MLVs) would result in the additional permanent loss of less than 1 acre of critical winter habitat for elk, mule deer, and pronghorn in Colorado. This permanent disturbance would result from the construction and maintenance of one MLV (MP 87.9) in Moffat County. No permanent aboveground facilities would be constructed within big game crucial winter habitat in Wyoming.

Small Game Species

Small game species that occur within the project region include upland game birds, waterfowl, furbearers, and other small mammals. Furbearers include beaver, muskrat, mink, badger, bobcat, coyote, red fox, and swift fox. Small game species include greater sage grouse, mourning dove, white-tailed jackrabbit, desert cottontail, Nuttall's cottontail, and a number of migratory waterfowl. The greater sage grouse is considered the most sensitive small game species along the project route and is discussed further in section 3.6.

Potential impacts to small game from the proposed project would result in the incremental loss of habitat and increased habitat fragmentation until reclamation has been completed and native vegetation is reestablished. Potential direct impacts to small game species would include nest or burrow abandonment or loss of eggs or young. Indirect impacts could include the temporary displacement of small game from the disturbance areas as a result of increased noise and human presence. Displacement of small game animals from disturbance areas would be short term and animals would be expected to return to the disturbance areas following construction activities.

Nongame Species

A diverse number of nongame species (e.g., small mammals, raptors, passerines, amphibians, and reptiles) occupy a variety of trophic levels and habitat types along the proposed pipeline ROW. Common wildlife species include small mammals such as bats, voles, squirrels, gophers, prairie dogs, woodrats, and mice. These small mammals provide a substantial prey base for the area's predators including larger mammals (coyote, badger, bobcat), raptors (eagles, buteos, accipiters, owls), and reptiles.

In order to minimize potential impacts to smaller, less mobile species, **we recommend that WIC should cap at the end of each workday uncovered pipe that has been placed in the trench to prevent animals from entering the pipe. In addition, EIs or biological monitors would remove animals from open trenches during construction.**

Raptors and Other Migratory Birds

Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) (16 USC 703-711) and Executive Order (EO) 13186 (66 FR 3853). The MBTA serves to protect migratory birds from deleterious impacts. EO 13186 was enacted to, among other things, ensure that environmental analyses of federal actions evaluate the impacts of actions and agency plans on migratory birds.

Other elements of the EO state that the federal agency should restore and enhance the habitat for migratory birds and abate the detrimental alteration of the environment from pollution. EO 13186 also states that emphasis should be placed on species of concern, priority habitats, and key risk factors. General impacts to migratory birds and WIC's proposed measures to minimize such impacts are discussed below. Federally listed and other sensitive bird species are discussed in section 3.6.2.

Migratory birds are considered integral to natural communities and act as environmental indicators based on their sensitivity to environmental changes caused by human activities. Some of the more visible bird species that occur within the project region are lark bunting, brewer's sparrow, and chipping sparrow.

Four general vegetation communities would be affected by the Piceance Project: shrubland (1,545 acres), woodland (187 acres), agriculture (99 acres), and grassland (78 acres). Sagebrush is the most widespread shrubland sub-community. Migratory bird species that use this habitat type in the project area for nesting include Brewer's sparrow, sage sparrow, and sage thrasher (Nicholoff 2003). Common migratory birds within the woodland community (mainly pinyon-juniper) include the gray flycatcher, chipping sparrow, and blue-gray gnatcatcher. Grassland is frequented by such migratory birds as the horned lark, lark bunting, and vesper sparrow (Beidleman 2000). Habitat fragmentation and "edge effects" are concerns for nesting migratory birds along the Piceance Project ROW. These effects result in overall changes in habitat quality, habitat loss, increased animal displacement, reductions in local wildlife and migratory bird numbers, and changes in species composition. However, the severity of these effects on migratory birds depends on factors such as sensitivity of the species, seasonal use, type and timing of project activities, and physical parameters (e.g., topography, cover, forage, climate). Approximately 116 miles, or 82 percent of the proposed pipeline ROW, parallels existing pipeline and powerline easements. The areas where the Piceance Project does not parallel existing ROW consist of shrubland (approximately 211 acres, 18 miles), agriculture (approximately 64 acres, 5.4 miles), and woodland (approximately 28 acres, 2.2 miles).

Because a majority of the construction would be adjacent to or overlap an existing cleared natural gas ROW, new edge habitat would replace existing edge habitat. In addition, most of the pipeline would cross relatively open habitat types (e.g., grassland, agriculture, and shrubland) rather than fragmenting dense woodland habitat. As such, we believe the effects of habitat fragmentation to migratory birds and their habitats from the proposed Piceance Project would not be significant.

Representative raptor species that occur as residents or migrants within the project region include eagles (bald and golden eagles), buteos (e.g., red-tailed hawk, Swainson's hawk, ferruginous hawk), falcons, (e.g., peregrine falcon, prairie falcon, American kestrel), accipiters (northern goshawk, Cooper's hawk, sharp-shinned hawk), owls (e.g., great-horned owl, burrowing owl, long-eared owl, short-eared owl), the northern

harrier, and the turkey vulture. A total of 189 nest sites were identified as occurring in the project vicinity. No nests were observed at 13 of the identified nest sites during WIC's preliminary pedestrian surveys conducted between July and September 2004. Fifteen of the sites are considered historic. For most nests, biologists were unable to determine the associated species. However, species identification was determined for nine of the nests. In Wyoming, nests were found to be occupied by golden eagle (1) and prairie falcon (1). In Colorado, nests were occupied by bald eagle (2), golden eagle (2), burrowing owl (1), American kestrel (1), and great-horned owl (1). The BLM identified two tracts of potential northern goshawk nest habitat, both occurring south of the White River in pinyon-juniper habitat. One site occurs in scattered habitat between MP 129.5 and MP 134.9 while the other area is located between MP 134.9 and MP 141.7.

WIC does not currently propose to construct the Piceance Project during the raptor nesting season (typically from February or March through mid to late summer); therefore, we do not anticipate direct effects to nesting raptors. **Should construction extend into the raptor nesting season, we recommend that WIC conduct additional pre-construction raptor nest surveys in accordance with agency (BLM, state wildlife agency) approved protocols. Results of the raptor nest surveys should be reported to the appropriate BLM FO and state wildlife agency. Further, we recommend that WIC report the results of any pertinent communications it has with the BLM, FWS, CDOW, and WGFD with the Secretary and should not begin construction until the FERC staff has reviewed the information, completed any necessary consultations with the FWS, and the Director of OEP notifies WIC in writing that construction or use of mitigation may begin.**

Likewise, any construction that was to extend into spring would overlap the start of the breeding season for other migratory birds. Depending on the specific habitat, birds of several species (e.g., long-billed curlew; loggerhead shrike; sage thrasher; and several jays, warblers, and sparrows, among others) could be directly affected by WIC's construction of the Piceance Project.

The removal of suitable foraging and nesting habitat can be considered a type of direct impact on migratory birds. This type of impact cannot be avoided altogether during construction; however, WIC has proposed measures that would minimize it to the extent practicable. This draft EIS discusses several of WIC's plans (e.g., WIC's Plan, Procedures, SPCC Plan, and POD) that would reduce the extent and duration of impacts on migratory bird habitat, actively and naturally allow a great majority of the construction ROW to return to pre-construction condition, and limit the potential effects from spills or environmental contamination. For example, WIC has committed to reducing the construction ROW width in wetlands (favorable habitat for many bird species) and would restore upland vegetation habitats (e.g., grassland, shrub-scrub, woodlands) in the construction ROW to preconstruction conditions.

Because of WIC's proposed construction schedule, its measures to minimize habitat disturbance, and our recommendations, we conclude that the proposed Piceance Project would not result in population-level impacts to migratory bird species.

3.6 Special Status Species

Special status species are those species for which state or federal agencies afford an additional level of protection by law, regulation, or policy. Included in this category are federally listed and federally proposed species that are protected under the ESA or are considered as candidates for such listing by the FWS, and those species that are state-listed as threatened or endangered. For this draft EIS, special status species also include those species that have been designated by the BLM as sensitive. Species of conservation concern and species listed by the Wyoming Natural Diversity Database were not analyzed in this draft EIS.

WIC, acting as the FERC's non-federal representative for the purpose of complying with Section 7(a)(2) of the ESA, initiated informal consultation with the FWS on July 13, 2004, regarding federally listed species with the potential to be affected by the proposed project. Initial consultations concluded that the Grand Junction, Colorado FO of the FWS would serve as the lead office for project consultations.

In accordance with Section 7 of the ESA, the lead agency (in this case, the FERC), in consultation with the FWS, would ensure that any action authorized, funded, or carried out by the applicant does not jeopardize the existence of a federally listed threatened or endangered species, or result in the adverse modification of the designated Critical Habitat of a federally listed species. We are requesting that the FWS consider this draft EIS as our BA for the proposed project. Pending additional surveys and related information from WIC, we may have to enter formal consultation for one or more species in order to fulfill our Section 7 obligations. Our recommendations (detailed below, as applicable) would ensure that WIC would not be authorized to begin project work until any necessary comments, concurrence, or formal consultation is completed between the FERC and the FWS regarding the proposed action.

In addition, as stated in Special Status Species Management Policy 6840 (Policy 6840) (Rel. 6-121), it is BLM policy "to conserve listed species and the ecosystems on which they depend, and to ensure that actions requiring authorization or approval by the BLM are consistent with the conservation needs of special status species and do not contribute to the need to list any special status species, either under the provisions of the ESA, or other provisions" identified in Policy 6840.

The construction impact analysis for special status plant and wildlife species focused on those species that were identified as potentially occurring within the project area. Special status plant and animal species originally considered for the proposed project are presented in appendix J. Our evaluation determined that some of these species are highly unlikely to occur in the project area or would otherwise not be affected by WIC's proposed action. We provide our comments on these species in appendix J and do not discuss them further.

Applicant-committed protection measures that have been developed for the project to prevent or minimize direct impacts on special status species are included in WIC's Draft Conservation Measures Plan (appendix H, WIC 2005e), also filed with the BLM as a part of WIC's POD. The Draft Conservation Measures Plan contains WIC's proposed measures that it would implement if federally listed species or species of concern were identified along the proposed pipeline route during project-specific or species-specific surveys. We have reviewed WIC's Draft Conservation Measures Plan and proposed mitigation measures and believe that, in general, these measures would reduce project-related impacts on special

status species. We have included additional recommendations, where necessary, to ensure that impacts on special status species are minimized to the greatest extent practicable.

3.6.1 Plant Species

A total of 14 sensitive plant species were originally identified as potentially occurring within the project area. These species, their associated habitats, and their potential for occurrence along the project route are summarized in appendix J. Occurrence potential along the project route was evaluated for each species based on its habitat requirements and/or known distribution. Based on these evaluations, seven plant species (Park rockcress, ephedra buckwheat, Utah genetian, narrow-leaf evening primrose, Rollins cryptanth, western prairie-fringed orchid, and Ute ladies'-tresses) were eliminated from detailed analysis. The remaining seven plant species are analyzed in greater detail.

Potential impacts on sensitive plant species from surface-disturbing activities could include the loss of individuals as a result of crushing from construction vehicles and equipment. Construction-related impacts also could result in the incremental long-term disturbance of habitat for these species along portions of the project route and at ancillary facilities (i.e., compressor stations, metering stations, MLVs, temporary use areas, and pipe and contractor yards). Because surface disturbance within the project area would be localized and distributed over a large geographic area, population-level impacts on sensitive species are not anticipated. Nevertheless, construction activities could potentially affect local populations of special status plant species within the project area. Species-specific impact summaries, WIC's committed conservation measures, additional mitigation measures, and our recommendations and determination statements (as applicable) are presented below.

Federally Listed Plants

Dudley Bluffs Bladderpod and Dudley Bluffs Twinpod (also known as Piceance Twinpod). The Dudley Bluffs bladderpod and Dudley Bluffs twinpod are found on the Thirteen Mile tongue portion of the Parachute Creek Member of the Green River Formation. Neither of these federally listed plant species was observed along the proposed pipeline ROW during WIC's 2004 surveys, although potentially suitable habitat exists within the project ROW between MP 128.0 and MP 141.7. WIC has already committed to conducting pre-construction surveys for these two plant species. **We recommend that prior to conducting surveys, WIC should coordinate with the FWS to ensure proper survey timing and protocols. We further recommend that prior to the start of construction, WIC should file the following information with the Secretary:**

a. **name(s) and qualifications of the person(s) conducting the survey;**

b. **method(s) used to conduct the survey;**

c. **date(s) of the survey;**

d. **area surveyed (include the mileposts surveyed); and**

e. **results of the surveys, to indicate species presence or absence.**

In order for us to complete our ESA Section 7 obligations, if a federally listed plant species was found during the preconstruction surveys, **we recommend that WIC notify the Commission staff and the FWS before commencing any project construction activity. This notification should contain WIC's evaluation of whether or not the plant(s) could be avoided by fencing, reroute, or by the use of a horizontal bore. Further, WIC should not begin construction activities until:**

a. **the staff receives comments from the FWS regarding the proposed action;**

b. **the staff completes formal consultation with the FWS, if required; and**

c. **WIC has received written notification from the Director of OEP that construction or use of mitigation may begin.**

Determination Statement

Effect on Critical Habitat: No effect. No Critical Habitat has been designated within the project area.

Effect on the Species: We conclude that the Piceance Project *may affect, but is not likely to adversely affect* the Dudley Bluffs bladderpod and Dudley Bluffs twinpod (a.k.a. Piceance twinpod). Our determination is based on 1) negative results for the 2004 surveys; 2) our analysis of WIC's proposed action and mitigation plans (e.g., WIC's Plan and Procedures, Draft Conservation Measures Plan, Weed Plan); and 3) our recommendations.

BLM Sensitive Plant Species

Debris Milkvetch, Nelson Milkvetch, Narrow-stem Gilia, Piceance Bladderpod, and Gibben's Beardtongue. Debris milkvetch occurs in pinyon-juniper woodland and mixed desert shrub, often on rocky soils ranging from sandy clays to sandy loams. It also occurs on alluvial terraces with cobbles. WIC's 2004 surveys identified Debris milkvetch in the vicinity of MP 125. Eight individual plants were documented at two distinct locations along the proposed ROW; seven individuals were observed approximately 65 feet west of centerline at MP 125.10, and one individual was observed at MP 125.15. Both of these documented sightings occurred on private land.

WIC would survey for BLM sensitive plants in suitable habitat prior to construction. WIC further states that it would attempt to avoid any such plants by the use of fencing or a reroute, and that it would transplant any BLM sensitive plants that could not be avoided. We note that the following protection measures would be included in the BLM ROD and ROW Grant for BLM lands:

- WIC would coordinate with the BLM to determine if additional mitigation measures or other appropriate actions would be required to reduce potential impacts to the population. WIC would not be authorized to proceed with construction until any BLM required mitigation had been implemented in accordance with the BLM ROW Grant.

- The Field Manager may grant an exception if the ground plant inventory is conducted and an analysis indicates that the nature or conduct of the action as proposed would not directly or indirectly contribute to the need to list or perpetuate listings under the ESA or the BLM special status species policy provisions. An inventory would determine, to the extent practical, the occurrence, distribution, population dynamics and habitat condition and significance on BLM lands with respect to maintaining or restoring those species.

WIC would monitor and implement the Conservation Measures Plan to ensure actions are consistent with recovery needs and the topsoil should be segregated for ditch line and spoil storage areas containing sensitive plants to ensure adequate topsoil is segregated and would replace the topsoil to ensure the seed bank is returned to the affected area.

Implementation of WIC's Weed Plan would minimize the introduction and/or spread of invasive plant species. We believe that the Piceance Project may impact individual plants but is not likely to cause a trend to federal listing or loss of viability for these plant species.

3.6.2 Terrestrial Animal Species

A total of 24 sensitive terrestrial species (mammals, birds, reptiles, amphibians) were originally identified as potentially occurring within the project area. These species, their associated habitats, and their potential for occurrence along the project route are summarized in appendix J. Occurrence potential along the project route was evaluated for each species based on its habitat requirements and/or known distribution. Based on these evaluations, two species (swift fox and yellow-billed cuckoo) were eliminated from detailed analysis since the Piceance Project would not affect these two species. The remaining 22 terrestrial wildlife species are analyzed in greater detail, below.

Potential impacts to sensitive species from surface disturbance activities would include the loss (short-term, long-term, or permanent), alteration, or fragmentation of potential breeding and/or foraging habitats. Potential impacts also could result in mortalities of less mobile or burrowing species as a result of crushing by vehicles and equipment, and the potential abandonment of a nest site or territory and the loss of eggs or young. Other impacts would include short-term displacement of some of the more mobile species from the disturbance areas as a result of increased noise and human presence.

Federally Listed Animal Species

Black-footed Ferret. The federally endangered black-footed ferret was once distributed throughout the high plains of the Rocky Mountains and western Great Plains regions, but is now thought to be the rarest mammal in the United States. In general, ferrets are secretive, primarily nocturnal, and rarely observed.

The black-footed ferret was considered extirpated from the U.S. until a small population was discovered in Wyoming in 1981. A captive breeding and re-introduction program, guided by the FWS, established some experimental/nonessential populations in Wyoming, Montana, South Dakota, and Arizona; however, ferret reintroduction efforts in Wyoming were suspended in 1995 because of disease. No reintroduced populations were established in the proposed project area; however, the project location is within the historic range of

the ferret. There are no recent sight records although, according to the Wyoming Natural Diversity Database, a ferret skull was found in Sweetwater County in 2000.

Black-footed ferrets are found in association with prairie dog colonies in grasslands and shrublands, and are highly dependent on prairie dog towns for both food and shelter. All active prairie dog towns or complexes of towns large enough to support ferrets are considered to be potential habitat.

The FWS has block-cleared all prairie dog towns in the Colorado portion of the project area. Therefore, no surveys are necessary for these locations. Surveys of white-tailed prairie dog towns in Wyoming are required if certain size and density requirements are met. Specifically, a prairie dog town is defined as a group of prairie dog burrows for which density meets or exceeds eight burrows per acre. According to FWS protocol, surveys for black-footed ferret are required for prairie dog complexes larger than 200 acres. Towns less than 4.3 miles apart are considered part of the same complex for survey threshold purposes. When assessing burrow density, the burrows need not be active to be counted, but would be recognizable and intact (i.e., not caved in or filled with debris).

WIC identified four active white-tailed prairie dog towns that would be crossed by Piceance Project route in Wyoming, and scattered towns were observed between MP 0.0 and MP 24.0. In its Draft Conservation Measures Plan, WIC states it would conduct a habitat survey in spring 2005 to verify colony size and to determine the need for protocol ferret surveys. WIC states that if prairie dog towns over 200 acres in size would be crossed, it would coordinate with the FWS to determine survey requirements and colony protection measures. **If prairie dog survey results indicate the need for protocol ferret surveys, we recommend that WIC file the following information with the Secretary:**

a. **name(s) and qualifications of the person(s) conducting the survey;**

b. **method(s) used to conduct the survey;**

c. **date(s) of the survey;**

d. **area surveyed (include the mileposts surveyed); and**

e. **results of the surveys, to indicate species presence or absence.**

We further recommend that WIC not begin construction activities until:

a. **the staff receives comments from the FWS regarding the proposed action;**

b. **the staff completes formal consultation with the FWS, if required; and**

c. **WIC has received written notification from the Director of OEP that construction or use of mitigation may begin.**

Determination Statement

Effect on Critical Habitat: No effect. No Critical Habitat has been designated for this species.

Effect on the Species: We conclude that the Piceance Project *may affect, but is not likely to adversely affect* the black-footed ferret. This determination is based on the low potential for occurrence by this species within the project area, WIC's commitment to conduct pre-construction surveys, and our recommendations.

Bald Eagle. The bald eagle is currently federally listed as threatened. Historically, populations of bald eagles were drastically reduced principally due to low productivity as a result of the bioaccumulation of pesticides. Since the banning of organochlorine pesticides such as DDT, bald eagle numbers have been increasing, leading to the species being proposed for federal delisting on July 4, 1999, as recovered. The bald eagle will, however, remain protected under the ESA until delisting is finalized. Bald eagles also are protected under the MBTA and the Bald and Golden Eagle Protection Act.

Because the bald eagle's diet consists mostly of fish, individuals tend to be found associated with bodies of water such as lakes, rivers, and reservoirs. Eagles also may forage opportunistically, especially in winter, feeding on waterfowl, dead fish, jackrabbits, and big game carrion.

Bald eagles may be present in the project area, where they typically roost communally during the winter and nest during the summer. Winter roosts in the project area may be occupied from October 15 to April 1. Typically, bald eagles will select roost sites such as large, stoutly limbed trees, snags, broken-topped trees, or rocks or cliff facings near water that provide easy access to hunting or feeding areas. Eagles tend to use the same roosts each year.

The nesting season is from February 15 to August 15. Migrant (non-nesting) individuals also could be present during the summer in appropriate habitat. Nests are usually large and conspicuous stick assemblages, and are built in habitat similar to that used for roosting. In Colorado and Wyoming, nest tree habitat can include old-growth ponderosa pine as well as narrow strips of riparian vegetation surrounded by rangeland.

Potential direct impacts on bald eagles during construction could include displacement of individuals to adjacent habitats or damage to occupied and/or unoccupied nests. If construction were to occur during the nesting season, impacts also could include abandonment of eggs or nestlings, injury to or mortality of nestlings, or destruction of eggs. Additionally, construction could potentially affect the availability of the bald eagles' primary food sources, thereby indirectly affecting individual eagles.

WIC identified two active bald eagle nest sites during its 2004 raptor surveys. One of the nests was located about 1,500 feet from the Little Snake River crossing (approximate MP 53.1), and the second nest was located about 1,350 feet from the White River crossing (approximate MP 128.5). WIC proposes to resurvey the nest sites in June 2005 for activity. As proposed, construction of the Piceance Project would occur outside of the bald eagle nesting season. If WIC's construction schedule changes and construction would occur during the bald eagle nesting season, **we recommend that WIC adhere to a 1-mile spatial buffer around previously identified active bald eagle nests (MP 53.1 and 128.5) for construction that occurs**

between February 15 and August 15. We note that buffer zones may be adjusted upon consultation with the FWS (and the BLM, on federally managed land) on a site-specific basis depending on topography and line-of-sight factors, the specific project activity (e.g., active construction vs. a one-time pass-through), other features in the area (e.g., a highway between the nest site and the construction zone), and the status of the nest (e.g., downy eaglets vs. fully fledged young). WIC would have a monitor present to evaluate these and other factors to determine whether or not to request a buffer zone variance from the FWS and BLM, as applicable.

We further recommend that in the event WIC encounters a previously unidentified active bald eagle nest within 1 mile of the construction ROW, WIC should concurrently notify the Commission staff and the FWS, and file such information with the Secretary. WIC should not continue with construction within 1 mile of the nest until the staff has reviewed the information, completed any necessary consultation with the FWS, and the Director of OEP notifies WIC in writing that construction may proceed or use of mitigation may begin.

Four bald eagle roost sites were observed during WIC's 2004 raptor surveys. The roost sites were located along the Yampa and White Rivers, and they ranged from 862 to 3,548 feet from the proposed Piceance Project ROW. Impact on roosting bald eagles generally occurs in either of two ways: 1) construction activity directly disturbs roosting eagles or 2) construction results in the clearing of potential roost trees in suitable habitat.

Non-nesting bald eagles may be temporarily displaced during construction, but this is not usually considered a significant impact. Individual eagles could find other suitable roosts in the general area until construction activity has passed. However, the FWS often recommends measures to minimize the amount and extent of such displacement. Examples of such measures include a 1-mile buffer zone around roosting eagles, timing construction to certain portions of the day, or having a waiting interval to see if eagles will leave the area on their own accord. (Typically, if construction is ongoing and an eagle enters the project activity area, construction would not have to stop.) With input from the FWS, BLM, and the CDOW, construction may be slowed or cease for some determined period if the eagles are disturbed by construction activities. FWS has indicated that winter roosting occurs in the project area between November 1 and April 15, and a disturbance-free buffer zone of 1 mile should be maintained around the roost site. If daily monitoring indicates that roosting eagles within 1 mile of the construction area are being agitated, **we recommend that WIC report the results of any pertinent communications it has with the FWS, local BLM offices, and CDOW with the Secretary and should not begin construction until the Commission staff has reviewed the information, completed any necessary consultations with the FWS, and the Director of OEP notifies WIC in writing that construction or use of mitigation may begin.**

In order to avoid impacts on bald eagle roosting habitat, WIC has committed to minimizing tree removal in all locations to the fullest extent possible. Trees exceeding 12 inches diameter at breast height (dbh) that may be removed during construction would be designated during planning for each stream crossing. WIC states that any tree exceeding 12 inches dbh not specifically designated for removal in the planning process but lost to construction would require financial compensation through the CDOW. **We further recommend that WIC document any potential bald eagle roosting tree that WIC believes could not be avoided,**

and describe the measures WIC considered before determining that removal would be necessary. WIC should not begin construction activities until:

a. the staff receives comments from the FWS regarding the proposed action;

b. the staff completes formal consultation with the FWS, if required; and

c. WIC has received written notification from the Director of OEP that construction or use of mitigation may begin.

Determination Statement

Effect on Critical Habitat: No effect. No Critical Habitat has been designated for this species.

Effect on the Species: We conclude that the Piceance Project *may affect, but is not likely to adversely affect* the bald eagle. This determination is based on the implementation of WIC's proposed conservation measures and our recommendations.

BLM Sensitive Animal Species

Townsend's Big-eared Bat, Fringed Myotis, and Yuma Myotis. The Townsend's big-eared bat and fringed myotis typically inhabit coniferous forests, and roost sites consist of caves, abandoned mines, rock crevices, and buildings. The Yuma myotis typically inhabits shrublands, grassland, barren areas, cliffs, and rock outcrops, and roosts are primarily in human-built structures (buildings and bridges) and occasionally in mines and caves. No historic communal bat roost sites (e.g., hibernacula, nursery colonies, bachelor roosts) have been recorded along the project route. Much of the project route would occur adjacent to or within previously disturbed ROW; thus we do not anticipate any direct impacts to communal roosts. Potential direct impacts to individual bats could occur as a result of crushing by vehicles and equipment during ROW clearing and other project-related construction. Impacts also would result from the incremental long-term reduction of potential foraging habitat (including habitat fragmentation) until reclamation is completed and native vegetation has become reestablished. Indirect impacts could result from increased noise levels and human presence. WIC would minimize potential direct and indirect impacts on bats by implementing BLM BMPs.

The proposed project may impact individuals but is not likely to cause a trend to federal listing or loss of viability of these bat species.

White-tailed Prairie Dog. Prairie dogs live in colonies and inhabit dry, flat, open grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle. Fine-to-medium textured soils are preferred, presumably because burrows and other structures tend to retain their shape and strength better than in coarse, loose soils. White-tailed prairie dogs tend to live at higher elevations and in meadows with more diverse grass and herb cover than do black-tailed prairie dogs.

During WIC's 2004 field survey, a total of six active white-tailed prairie dog colonies were identified along the project ROW between MP 0.0 and MP 94.0, and scattered colonies were observed between MP 0.0 and MP 24.0 during the 2004 surveys.

The potential effects of construction through a prairie dog colony may include temporary loss of forage and shelter due to vegetation clearing, collapsing of burrows, and temporary disruption of foraging and resting activities due to disturbance associated with construction equipment. Direct mortality of prairie dogs could result if active burrows are occupied at the time of construction. If construction occurs later in the prairie dog's reproductive season (late May to early June), most prairie dogs are expected to be mobile and able to avoid construction traffic; however, some individual prairie dogs may be injured or killed during construction. In addition, there is a potential for destroying active dens with young if construction occurs during the reproductive season. If WIC's construction schedule changes and construction would occur during the white-tailed prairie dog's reproductive season, BLM will likely impose a construction timing restriction from May through July on BLM land. Following construction and restoration, the revegetated ROW would provide foraging habitat for prairie dogs, and the unconsolidated soils along the trench would likely provide a good substrate for burrowing.

We believe that the Piceance Project may impact individuals but is not likely to cause a trend to federal listing or loss of viability to white-tailed prairie dogs.

Wyoming Pocket Gopher. This species occurs in upland drier ridge tops (gravelly loose soils) in greasewood habitat. The Wyoming pocket gopher often nests in a maternal burrow, and usually feeds underground in a shallow tunnel, pulling roots and plants. The Wyoming pocket gopher is a BLM sensitive species in Wyoming.

Potential impacts on the Wyoming pocket gopher from construction of the Piceance Project would be minimal because its range is limited to the southeastern corner of Sweetwater County; however, a small amount of potentially suitable habitat could occur along the project route. WIC has committed to reassessing the habitat for the Wyoming pocket gopher, which will be completed by May 30, 2005. The highest possibility for direct impact could occur during clearing if heavy equipment collapses dens and tunnels while navigating the ROW, or during the trenching process. Once operational, the pipeline corridor would provide loose soil for dens and rodent burrows, plus forbs, grasses and seeds for rodent forage.

We believe that the Piceance Project may impact individual pocket gophers but is not likely to cause a trend to federal listing or loss of viability to this species.

Golden Eagle, Ferruginous Hawk, Swainson's Hawk, American Peregrine Falcon, Northern Goshawk. Potential impacts to these raptors are discussed along with other migratory birds in section 3.5.2, above.

Western Burrowing Owl. Burrowing owls typically use burrows made by prairie dogs and other small mammals. Destruction of burrows could result in displacement of owls into less suitable habitats, potentially increasing susceptibility to predation, reducing cover or forage habitat, or reducing reproductive success. Displacement, injury, or direct mortality could result if active burrows are occupied at the time of destruction.

WIC observed one active burrowing owl nest at approximate MP 54 during its 2004 habitat surveys. WIC proposes to construct its pipeline outside the burrowing owl nesting season (February 1 and August 31), which would avoid impacts on nesting owls. Should construction extend into the breeding season, the BLM would require WIC to adhere to seasonal and spatial buffers for burrowing owls on BLM land. For example, the BLM typically requires a 0.75-mile-wide protection zone around an active nest between February 1 and July 31. Any such restrictions would be included as a part of a BLM ROW grant issued for the project. To minimize potential impacts to the burrowing owl, **we recommend that BLM requirements established for burrowing owl be implemented for the entire Piceance Project, regardless of land ownership.**

Thus, we believe that the Piceance Project may impact individual burrowing owls but is not likely to cause a trend to federal listing or loss of viability to this species.

Greater Sage Grouse. The greater sage grouse is designated as a sensitive species by the BLM, and has been petitioned for federal listing consideration. In April 2004, the FWS determined that listing the sage grouse under the ESA may be warranted and initiated a status review. However, based on a 12-month finding for petitions to list the greater sage grouse as threatened or endangered, the FWS has subsequently determined that the listing is not warranted (70 FR 2244).

Sage grouse are highly dependent on sagebrush for cover and food. Sagebrush also serves as the critical component in leks (breeding grounds), nesting, feeding sites, rearing sites, and wintering grounds. Although the sage grouse typically prefers taller sagebrush plants and stands for nesting and roosting cover, lekking grounds are generally open areas with low, sparse sagebrush, such as swales, meadows, and burned areas. Lekking grounds are generally surrounded by areas of 20 to 50 percent low-height, sagebrush cover. Secondary to sagebrush habitat, sage grouse require moist wetland and wet meadows to aid in brood rearing.

Potential direct impacts of construction on sage grouse may include the loss of lekking grounds and other sage grouse habitat. Although the Piceance Project would not result in a permanent loss of habitat along the pipeline ROW, the regeneration of sagebrush would likely be slow and could take up to several decades. However, potential impacts on sage grouse habitat would be minimized by locating the proposed ROW within previously disturbed areas (i.e., adjacent to existing pipelines and/or roads) to the extent possible. Given the abundant suitable habitat in the general area, it is not likely that the minor, yet long-term loss of habitat along the pipeline ROW would affect sage grouse populations in the vicinity of the proposed project.

Depending on the timing of construction, the proposed project could potentially impact sage grouse during lekking activities or brood rearing, and could cause displacement, injury, or direct mortality of individuals. Sage grouse are particularly sensitive to disturbances while they gather on lekking grounds each morning and evening from early March to early May. Construction activities and associated noise occurring in early morning and late afternoon or early evening in the vicinity of lekking grounds could disrupt and potentially displace sage grouse that have gathered for breeding activities. In addition, once breeding activities have concluded, sage grouse hens create their nests on the ground underneath sagebrush plants in proximity to the lekking grounds. The proposed project could potentially impact nesting sage grouse by destroying nests,

causing nest abandonment, or causing injury or direct mortality to the young. In addition, brood rearing habitat could potentially be impacted by causing injury or direct mortality to the young.

A total of 23 current and historic sage grouse lek sites have been identified as occurring within 2 miles of the project ROW in Colorado (20 sites) and Wyoming (3 sites) based on WIC 2004 breeding season surveys and historic data. WIC has proposed additional preconstruction surveys for sage grouse leks in April 2005. These surveys would be conducted according to appropriate BLM protocols. Four lek sites are within 0.25 mile of the project ROW (MP 31.3, MP 56.9, MP 77.1, and MP 94.9). The lek site at MP 31.3 is located within the BLM Rawlins FO (Wyoming) district, and the three remaining lek sites within 0.25 of the ROW are located within the BLM Little Snake FO (Colorado) district. We note that the BLM may require sagebrush transplants on BLM land affected by the project.

For suitable nesting habitat associated with an active lek within 2 miles of the construction ROW, WIC would minimize direct impacts to nesting habitat by constructing outside the breeding season (no construction would occur between March 1 and June 30), and reducing the width of the ROW as practical, or as otherwise permitted by the appropriate resource agency. Timing restrictions associated with the sage grouse breeding season also would apply to access roads that bisect suitable nesting habitats. No permanent aboveground facilities would be constructed within 0.25 mile of a known lek site along the project route.

Following construction, the project area would be restored to preconstruction contours, and areas of suitable habitat would be restored by broadcast seeding (prior to drill seeding the ROW) with a seed mix that includes native species (including sagebrush) and is acceptable to the landowner, local NRCS, or other applicable agencies.

To further minimize potential impacts to the sage grouse, **we recommend if low-intensity preconstruction (e.g., surveying and staking) work is necessary within 2 miles of known sage grouse leks between March 1 and June 30, activities should occur only between 9:00 a.m. and 4:00 p.m.**

Two sage grouse lek sites have been documented within 2 miles of the CIG Greasewood Compressor Station, in Rio Blanco County. The two lek sites are located 6,148 feet and 7,950 feet east of the compressor station. We do not anticipate that noise levels from operation of the proposed CIG Greasewood Compressor Station modifications would result in a significant impact on sage grouse. We note that the CIG Greasewood Compressor Station is an existing facility already contributing to local noise conditions. According to WIC's noise measurements (conducted 1,700 feet from the CIG Greasewood Compressor Station); with the compressor addition operated at full load, noise levels would increase by only 1.0 decibel on the A-weighted scale (dBA). This would represent a minimal noise level increase at the distance of the sage grouse leks.

Mountain Plover. The mountain plover is a migratory species whose breeding habitat includes prairie grasslands, shrub-steppe communities, agricultural land, and prairie dog towns. Plovers usually nest on level terrain occupied by sparse, short vegetation (typically 4 inches or less in height). The sparse

vegetation is commonly caused by herbivore grazing (domestic livestock and prairie dogs) and surface disturbance from human activities (e.g., well pads, bladed lay down areas) (FWS 2002).

The primary mountain plover nesting period is from May 1 through June 15. Young chicks commonly stay on the nest or freeze in place to avoid detection from about June 15 through July 10, resulting in a higher potential for losses from excavation equipment traversing over nest sites. After July 10, the chicks are sufficiently mobile to move away from construction equipment.

Approximately 10 miles of potentially suitable mountain plover habitat (including 1 active nest at MP 15.1) was identified during the 2004 surveys along the project ROW. Suitable habitat for mountain plover (including prairie dog town locations) is scattered along the ROW in the following areas: MP 0.0 to MP 24.0, MP 29.8 to MP 30.1, MP 54.0, MP 93.5 to MP 94.1, and MP 111.3. WIC does not propose additional pre-construction surveys for this species because construction would occur outside the breeding season.

If construction were to begin in or extend into the breeding season (mid-April through early July), direct (e.g., ground disturbance) or indirect (e.g., noise, human presence) impacts to nesting mountain plover could result in abandonment of breeding territory or a nest site, or the loss of eggs or young. Thus, **we recommend that WIC not construct in suitable mountain plover habitat between April 10 and July 10 until WIC has:**

a. conducted agency-approved surveys for the mountain plover;

b. developed a mitigation plan, including agency-approved buffer zones or other protection measures for nests and chicks; and

c. filed this information with the Secretary for review and written approval of the Director of the OEP before construction or use of mitigation may begin.

Based on proposed construction outside the nesting season and our recommendation accounting for construction within the mountain plover breeding season, we believe the Piceance Project may impact individuals but is not likely to cause a trend to federal listing or loss of viability.

Loggerhead Shrike, Sage Thrasher, Sage Sparrow, and Brewer's Sparrow. Potential impacts to these migratory bird species would be the same as discussed for other migratory bird species in section 3.5.2, above.

Great Basin Spadefoot, Northern Leopard Frog, and Midget Faded Rattlesnake. Potential impacts to amphibian and reptile species include direct mortalities of individuals from construction activities, ground compaction, and vehicle traffic within suitable habitat. Impacts also would result from the incremental long-term reduction of potential habitat until reclamation is completed and native vegetation has become reestablished.

The potential for these species to occur within the project area are considered low. No further preconstruction surveys are proposed. However, WIC proposes to monitor for the Great Basin spadefoot

during construction. The biological monitor and/or EI would work with the ditching machine or track hoe and look for amphibian and reptile species in their appropriate habitat. If an individual spadefoot is observed, it would be removed from the ROW by the monitor, and a report submitted to the CDOW and Colorado and Wyoming Natural Heritage Programs. **We further recommend that if these species are observed during construction, WIC should install exclusion fencing to a depth of 6 inches into the ground in the area of suitable habitat containing the population to keep individuals from entering the construction ROW.**

The proposed project may impact individual amphibians and reptiles but is not likely to cause a trend to federal listing or loss of viability.

3.6.3 Fish Species

Eight sensitive fish species were originally identified as potentially occurring within the project area. These species, their associated habitats, and their potential for occurrence along the project route are summarized in appendix J. The potential for occurrence at stream crossings and downstream reaches was evaluated for each species based on its habitat requirements and/or known distribution. The federally listed bonytail chub, humpback chub, and razorback sucker do not occur in the project area but are included in our detailed analysis based on the project's potential water depletion activities (i.e., hydrostatic testing) in the Colorado River Drainage (FWS 1994). However, habitat is present for these three species at varying distances below the proposed crossings. The closest occupied or Critical Habitat is located at the following approximate distances downstream of the proposed crossings: 30 to 40 miles downstream of the Yampa River crossing (razorback sucker, humpback chub, and bonytail chub); 70 miles downstream of the White River crossing (razorback sucker); and at least 30 miles downstream of the Little Snake River crossing (razorback sucker). Consequently, project effects to these fish species would be limited to potential water depletions from hydrostatic testing within the Colorado River drainage (see discussion below).

The Colorado pikeminnow likewise occurs downstream of the proposed White and Yampa River crossings and could be affected by water depletions; however, this species also could occur at the location of the proposed Yampa River crossing (which also is designated as Critical Habitat for this species). Direct effects to this species and its Critical Habitat are likewise discussed below.

The remaining four fishes (bluehead sucker, flannelmouth sucker, mountain sucker, and roundtail chub) are BLM sensitive species that potentially occur in the White, Little Snake, and Yampa Rivers.

An accidental release of drilling mud (called "frac-out") and potential effects of this release during the HDD crossing method at the Little Snake, White, and Yampa Rivers is discussed in sections 3.3.2 and 3.5.1.

Federally Listed Species

Bonytail Chub, Humpback Chub, Razorback Sucker, Colorado Pikeminnow (impacts from water depletions). The FWS has expressed concern about the potential downstream impacts on federally listed species resulting from hydrostatic test water withdrawals from the Upper Colorado River Basin. The federally endangered bonytail chub, humpback chub, razorback sucker, and Colorado pikeminnow are

known to occur in downstream portions of the White, Yampa, and Little Snake Rivers, which are part of the Upper Colorado River Basin. These fishes could be adversely affected by any action causing water depletions to the Colorado River system.

Water depletion impacts resulting from the withdrawal of 33 acre-feet for hydrostatic testing could include a slight temporary reduction of potential spawning and rearing habitat in the Upper Colorado River Basin due to changes in downstream water flow. No changes in water temperature or dissolved oxygen would be anticipated as a result of the relatively small water volume. Potential impacts would be greatest during the spawning periods for these species in spring and early summer. The FWS defines a "depletion" as consumptive loss plus evaporative loss of surface or groundwater within the affected basin. Any water depletion would represent an adverse impact on habitat for the Colorado pikeminnow, razorback sucker, humpback chub, and bonytail, and would need to be considered in formal Section 7 consultation.

However, if water is returned to the source waterbody within a certain amount of time after withdrawal, the threshold for "depletion" and formal consultation may not be reached. Factors to consider in determining downstream effects to listed fishes include what time of the year water is withdrawn, whether the water has been treated, other water uses at the time of withdrawal (cumulative impact), and how close to the withdrawal source the water is returned (i.e., a source location return vs. a "basin return").

The Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (Recovery Plan) was established in 1988 to mitigate for water depletion impacts to for Colorado River federally endangered fish species. To ensure the survival and recovery of the listed species, water users are required to make a one-time payment to the Recovery Program. The current depletion fee (through September 2005) is $15.93/acre-foot. In 1995, an intra-FWS Opinion determined that the fee for depletions less than 100 acre-feet (annual average) would no longer be required (FWS 1995).

WIC proposes withdrawing approximately 33 acre-feet of water from three locations along the White, Yampa, and Little Snake Rivers (16.8, 8.8, and 7.4 acre-feet, respectively) between October 1 and November 15 (or later) (see **table 3.3-3**). Hydrostatic testing for the various test sections is currently planned to occur over a multiple-day period. The actual duration of hydrostatic testing for a given test section would be dependent on the rate of withdrawal and the section of pipe that would be tested. WIC's hydrostatic testing plan is included as appendix E of this draft EIS, and FERC recommendations to the plan are discussed in section 3.3.2. In order to avoid or minimize potential impacts to Colorado River endangered fish species from water withdrawal in the Colorado River Basin, the FWS would prefer that water withdrawal activities occur between October 1 and June 30. WIC's proposed withdrawal plan would conform to the FWS recommendation.

WIC proposes to discharge hydrostatic test water withdrawn from surface waters onto upland areas immediately following hydrostatic testing. Discharges would be completed as quickly as possible, but would be governed by the volume of water in a test section and the discharge rate. Potential impacts from water discharge could include erosion of the upland soils at the point of discharge. WIC would minimize the potential for upland erosion by using energy-dissipating devices and appropriate dewatering structures that would disperse and slow the velocity of any discharges.

We note that water depletion impacts on federally listed fishes may be influenced by the location of hydrostatic test water discharge. Thus, **we recommend that WIC include in its revised Hydrostatic Test Plan its rationale for discharging the hydrostatic test water to upland areas, rather than into the waterbody where the water was withdrawn. If, after review, FERC determines that it would be more appropriate to return the water to the original waterbody, WIC should submit procedures to minimize the potential impacts from water discharge that could result in increased erosion of the stream banks and stream bottom scour.**

We do not anticipate the introduction of contaminants because WIC would test only new pipe and would not chemically treat the water.

Colorado Pikeminnow (impacts from waterbody crossings). The Colorado pikeminnow inhabits medium to large rivers in the Upper Colorado River Basin including the Colorado, Gunnison, Green, White, and Yampa Rivers. The adults use deep, turbid, strongly flowing eddies, runs, flooded bottoms, or backwaters (especially during high flow), while juveniles prefer small, quiet backwaters.

Due to the location of bore pits, drilling equipment, and pipe strings associated with the Yampa River HDD, surface disturbing activities would occur within the 100 year floodplain of the Yampa River. However, the HDD work areas would be located outside of the water level of the river, which would avoid instream impacts. Construction techniques and reclamation would be designed to minimize potential increased sedimentation during future high water events. Since construction equipment would be refueled and lubricated outside of the 100-year floodplain, no fuel spills or leaks would affect the Colorado pikeminnow Critical Habitat at this location. We do not anticipate any impacts to designated Critical Habitat for the Colorado pikeminnow in the White River, which is about 10 miles downstream from WIC's proposed crossing location.

WIC's proposed HDD crossings of the White and Yampa Rivers would avoid instream impacts and thus would have little to no effect on the Colorado pikeminnow or its designated Critical Habitat. If a rupture or leak occurred during drilling, short-term sedimentation and bottom disturbance could occur at the crossing, as described above for the other endangered fish species. By implementing the measures in its HDD Plan, potential impacts to Colorado pikeminnow would be minimized and short-term in duration. Inadvertent release of drill muds ("frac-outs") are discussed above in sections 3.3.2 and 3.5.1.

However, if an HDD crossing could not be completed at the Yampa or White Rivers, WIC has stated that its alternate plan is to cross using an open-cut technique. A non-HDD crossing of the Yampa River and, to a lesser extent, the White River, would have the potential for greater impact on the Colorado pikeminnow.

Our determination of effect for the Colorado pikeminnow is dependent on the Yampa and White River crossings being completed by HDD. If WIC is not able to complete an HDD crossing at these rivers, WIC has proposed to use an open-cut crossing. We note that WIC provided a brief analysis of environmental impacts from an open-cut crossing at these locations; however, we would still need to evaluate a non-HDD crossing and consult further with the FWS in order to fulfill our ESA Section 7 obligations. Thus, **we recommend that WIC not proceed with a non-HDD crossing of the Yampa or White Rivers until it has filed a site-specific alternate crossing plan with the Secretary for review. This plan should identify**

measures that would minimize instream impacts and avoid or minimize potential impacts on federally listed fishes. WIC should not begin a non-HDD crossing of the Yampa or White Rivers until the FERC completes any necessary ESA Section 7 consultation with the FWS, and the Director of OEP notifies WIC in writing that it may proceed with the alternate river crossing method.

Determination Statement

Colorado Pikeminnow (impacts from waterbody crossings)

Effect on the Species and Critical Habitat: WIC's crossing of the Yampa and White Rivers, as proposed, *may affect, but is not likely to adversely affect* the Colorado pikeminnow or *to adversely modify* its Critical Habitat. This determination is based on WIC's proposed HDD crossings of the White and Yampa Rivers and our recommendations. In addition, WIC would adhere to the fisheries construction timing window identified by the FWS (constructing between October 1 and March 1) to avoid or minimize potential sedimentation and turbidity impacts during the Colorado pikeminnow spawning season. Thus, even if a frac-out was to occur, we anticipate little to no direct impact to this species or its Critical Habitat.

Colorado Pikeminnow, Razorback Sucker, Humpback Chub, and Bonytail Chub (impacts from water depletions)

Effect on the Species and Critical Habitat: WIC's withdrawal of approximately 33 acre-feet of water from the Upper Colorado River Drainage *may affect, but is not likely to adversely affect* the Colorado pikeminnow, razorback sucker, humpback chub, and bonytail chub, and is not likely *to adversely modify* their Critical Habitats. By adhering to the recommendations of the Recovery Plan, the effects of water withdrawal on habitat for these species would be mitigated. However, we recognize that WIC's use of about 33 acre-feet of water may be considered a "depletion" by the FWS, particularly if the water were not returned to the waterbody from which it was withdrawn. If this withdrawal is considered a depletion, we request that the FWS consider the EIS/BA our initiation of formal consultation under Section 7 of the ESA for the bonytail chub, humpback chub, razorback sucker, and Colorado pikeminnow. WIC would not be authorized to contribute to a depletion in the Colorado River basin until any necessary consultation is completed.

BLM Sensitive Species

Bluehead Sucker, Flannelmouth Sucker, and Mountain Sucker. These native species occur in the Yampa and White Rivers and Dry Fork Piceance Creek. They utilize a variety of habitats that include riffles, pools, runs, and backwater areas in larger streams and rivers. Spawning occurs in the spring or early summer at lower elevations (Woodling 1985).

Roundtail Chub. This species also inhabits a variety of habitats in the White and Yampa Rivers. Adults prefer pools associated with undercut banks and other types of cover, while young fish occur in shallower water with lower velocities. All age groups prefer cobble-rubble, sand-cobble, or sand-gravel substrates (Woodling 1985). Runs and riffles are used primarily during feeding. Spawning occurs in the spring or early summer.

Since these species potentially occur at and downstream of the proposed crossings, impacts of water withdrawal and stream crossing construction would be the same as described for the Colorado pikeminnow.

We believe the Piceance Project may impact individual fish but is not likely to cause a trend toward federal listing or loss of viability for these species.

3.7 Land Use, Recreation, Visual Resources

3.7.1 Land Use

Land Ownership

About 54 percent (76.9 miles) of the land crossed by the proposed Piceance Project route and aboveground facilities is managed or owned by public entities. Of the public land total, the majority is managed by the BLM, while 8 percent is managed or owned by the State of Colorado (CDOW and CSLB). The proposed project would not cross lands managed or owned by the State of Wyoming or local government entities such as municipalities. **Table 3.7-1** summarizes land ownership that would be crossed by the proposed pipeline route.

Table 3.7-1
Summary of Federal, State, and Local Government Owned Lands Crossed by the Proposed Pipeline Route

State/Ownership	Approximate Crossing Length (miles)	Percent of Total Length
WYOMING		
Federal	40.9	29
State	0.0	0
Local	0.0	0
Wyoming Subtotal	40.9	29
COLORADO		
Federal	24.8	17
State	11.2	8
Local	0.0	0
Colorado Subtotal	36.0	25
Project Total	**76.9**	**54**

The remaining 46 percent (64.8 miles) of the proposed pipeline route would cross privately owned land.

Land Use Plans and Policies

The proposed project would cross approximately 66 miles of land managed by three BLM FOs: the White River FO in Meeker, Colorado; the Little Snake FO in Craig, Colorado; and the Rawlins FO in Rawlins, Wyoming. BLM land accounts for about 46 percent of the total pipeline route. In general, the BLM manages these lands for multiple uses, including recreation, wildlife management, livestock grazing, wild horses, and mineral resources under guidelines set forth in the three RMPs that BLM uses for management direction (BLM 1997, 1990, 1986).

Construction of the proposed project would be consistent with the existing BLM RMPs and would not preclude the management objectives set forth for BLM offices. WIC's POD is being developed in

coordination with BLM FOs. The POD is a construction plan that includes procedures for the use of BLM roads, soil and water protection measures, revegetation and weed control/management standards, biological and cultural resource protection measures, livestock and wild horse management measures, and post-construction monitoring requirements (see section 2.3, Construction Procedures).

Land owned by the state of Colorado that would be crossed by the proposed pipeline route is managed for wildlife habitat, recreational uses, or leased to private tenants for livestock grazing. Some state lands are special interest areas and are shown in **table 3.7-2**. The remaining scattered portions of state owned or managed lands not identified as special interest areas are leased to private entities for livestock grazing and ranching. WIC would acquire the necessary permits and approvals for construction on state lands. Environmental protection measures attached to lease agreements would be similar to those described for the BLM above.

Table 3.7-2
Recreation and Special Interest Areas Crossed by and Within 0.25 Mile of the Proposed Piceance Project Pipeline Route

State/County	Start/End MP	Crossing Length (miles)	Acres Affected[1]	Name	Managing Agency
Wyoming					
Sweetwater	19.7	NA	<0.1	Overland Trail	BLM
Sweetwater	47.0	NA	<0.1	Cherokee Trail	BLM
Colorado					
Moffat	86.0-88.4	2.4	24.7	Natural Conservation Area Middle Yampa River Megasite	Private
Moffat	Adjacent to 88.8-90.5	1.7	17.5	Natural Conservation Area Juniper Mountain	BLM
Moffat	89.2-91.9	2.7	27.8	Bitter Brush State Wildlife Area (SWA)	CDOW
Moffat	95.8-97.7	2.5	25.8	Natural Conservation Area Deception Creek	State of Colorado
Rio Blanco	131.7-134.3	2.6	26.8	Little Hills Game Experiment Station - Piceance Creek SWA	CDOW
Rio Blanco	134.7-135.4	0.7	7.2	Little Hills Game Experiment Station - Piceance Creek SWA	CDOW

[1] Calculated based on a 85-foot construction ROW except in wetlands where a 75-foot ROW would be used. Disturbance for additional temporary workspace areas is included.

Project Land Requirements

The Piceance Project would require land for the construction ROW, permanent ROW, additional temporary workspace areas, access roads, pipe and contractor yards, and construction and operation of aboveground facilities. Land use calculations were based on an 85-foot-wide construction ROW, except in wetlands where the construction ROW would be reduced to 75 feet. As outlined in chapter 2.0, a 50-foot-wide permanent ROW easement would be acquired by WIC. The permanent ROW would be maintained in an open condition (i.e., generally free of trees and aboveground structures) for the life of the pipeline facilities. Impacts on land use for operation of the pipeline facilities were calculated based on the 50-foot ROW width. Land use calculations for additional temporary workspace areas were based on typical requirements. Pipe and contractor yards and aboveground facilities were based on each feature's dimensions.

The principal land use that would be affected by the proposed pipeline route and its associated facilities is rangeland (123.7 miles, or 87 percent of the total pipeline length). Other land uses that would be crossed by the proposed pipeline include forest land (11.8 miles; about 8 percent) and agricultural land (6.2 miles; about 4 percent).

Construction of the proposed Piceance Project would temporarily disturb 1,909 acres. Of that total, 860 acres would be retained by WIC as permanently maintained pipeline ROW and for operation of the proposed aboveground facilities (**table 3.7-3**). The predominant land use that would be affected by construction is rangeland (1,632 acres), followed by forest land (177 acres), and agricultural land (99 acres). Operation of the proposed project would affect 751 acres of rangeland, 72 acres of forest land, and 38 acres of agricultural land.

Rangeland. In areas where rangeland is used for grazing, construction activities could temporarily reduce the carrying capacity of BLM grazing allotment and privately held pastures, and could hinder the movement of livestock, horses, and/or wildlife across those allotments. To minimize impacts on grazing areas, WIC would implement the following BLM-approved mitigation measures:

- fences crossed by the proposed pipeline route would be cut in a manner to prevent slack, and gates would be installed across the opening to prevent livestock, horses, and wildlife passage, if required;
- temporary fencing would be installed to prevent livestock, horses, and wildlife from entering the construction area; and
- natural barriers removed during pipeline activities would be repaired or restored to pre-construction condition or if repair is not feasible, a fence would be installed in its place.

Following construction, temporary fences would be removed, the ROW restored to its pre-construction condition, and livestock would be allowed to graze and roam freely over the permanent ROW. Given the narrow, linear nature of the project, livestock forage reductions would be minor in comparison to the forage available on large BLM allotments and large private ranches that would be crossed. Any loss of forage

Table 3.7-3
Acres of Land Uses Affected by Construction and Operation of the Piceance Project

State/ Facilities	Rangeland		Forest Land		Agricultural Land		Total	
	Const	Oper	Const	Oper	Const	Oper	Const	Oper
WYOMING								
Pipeline (main) [1]	518	305	16	10	0	0	535	315
Additional Temporary Workspace Areas	98	0	6	0	0	0	104	0
Pipe Storage and Contractor Yards [2]	38	0	0	0	0	0	38	0
Pipeline Interconnections [3]	0	0	0	0	0	0	0	0
Access Roads	24	0	0	0	0	0	24	0
Aboveground Facilities [4]	11	0	0	0	0	0	11	0
Wyoming Subtotal [5]	689	305	22	10	0	0	711	315
COLORADO								
Pipeline (main) [1]	757	445	105	62	64	38	926	545
Additional Temporary Workspace Areas	161	0	50	0	16	0	227	0
Pipe Storage and Contractor Yards [2]	0	0	0	0	20	0	20	0
Pipeline Interconnections [3]	0	0	0	0	0	0	0	0
Access Roads	7	0	0	0	0	0	7	0
Aboveground Facilities [4]	18	1	0	0	0	0	18	<1
Colorado Subtotal [5]	943	446	155	62	99	38	1,198	545
Project Total [5]	**1,632**	**751**	**177**	**72**	**99**	**38**	**1,909**	**860**

1 Const. – Construction. Oper. – Operation. Construction ROW based on an 85-foot-wide construction ROW, except in wetlands where a 75-foot-wide construction ROW would be used. Operation acreage was estimated based on a 50-foot-wide permanently maintained ROW in all areas and does not include access roads.

2 This total represents offline pipe yards only. Staging areas are proposed for use as contractor yards; land requirements are previously accounted for in additional temporary workspace areas row.

3 The pipeline interconnect construction acreage is previously accounted for under the additional temporary workspace areas row (associated with the staging areas located at the Wamsutter and CIG Greasewood Compressor Stations). Operation acreage is previously accounted for under the pipeline ROW.

4 Facilities proposed for installation at the existing CIG Wamsutter Compressor Station include two interconnections, two metering stations, a MLV, and a pig facility. Approximately 1,650 horsepower of new compression would be installed at existing CIG Greasewood Compressor Station. Concurrent with this installation would be the installation of two interconnections, two metering stations, a MLV, and a pig facility. Operation of the proposed new facilities at the existing compressor stations would not require any additional land. Nine MLVs and one pigging facility would be constructed within the 85-foot-wide construction ROW; therefore, disturbance acreage is previously accounted for under the pipeline ROW. Each MLV would be operated within the permanently maintained 50-foot-wide ROW with one exception. At MP 54, an additional 0.1 acre would be required to operate the combined MLV/pigging facility at this location.

5 The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the exact sum of the addends in all cases.

would be temporary and BLM will not reduce the grazing preference or animal unit months on any BLM grazing permit because of the pipeline project. Pre- and post-construction weed management programs, and reseeding with mixtures approved by the BLM and state agencies would be applied. Although easement agreements may vary among landowners, similar weed control and revegetation measures would likely be included in private landowner easement agreements. The BLM and the FERC would conduct post-construction monitoring to verify revegetation success, and to identify any areas along the post-construction ROW that require further stabilization.

Operation of aboveground facilities would require the permanent conversion of about 1 acre of rangeland to industrial use for the County Road 4 pigging facility at MP 54 and MLV located along the pipeline ROW.

Agricultural Land. Agricultural land crossed by the Piceance Project consists of dryland pastures. No aboveground facilities would be located within agricultural lands.

Forest Land. The primary forest land types are pinyon-juniper woodland in western Colorado. About 177 acres of forested land would be temporarily disturbed during construction of the Piceance Project; about 72 acres of forested land would be within the permanent ROW. The primary effect of construction on forest land would be the temporary removal of trees and shrubs from the construction ROW and additional temporary workspace areas, where required. Following construction, trees and shrubs would be allowed to regenerate within the areas that would not be retained as part of the 50-foot-wide permanently maintained ROW. In riparian woodlands, the permanent ROW would be limited to a 10-foot-wide strip centered over the pipeline. The permanent ROW would be maintained to support primarily herbaceous- or shrub-dominated communities. The rate of forest reestablishment would vary depending on species and weather conditions, but would generally exceed 50 years.

Residential and Commercial Areas. No existing residential and commercial areas would be affected by the construction and operation of the proposed Piceance Project.

WIC has consulted with the counties crossed by the proposed pipeline route and towns located near the proposed project to request information about planned future residential and commercial developments. In the future, WIC would continue to coordinate with local planning and zoning offices to reduce the potential cumulative impacts that may result from concurrent pipeline and residential or commercial development. If sufficient development occurred adjacent to the pipeline, the class location could change as described in section 3.11.1.

Recreational and Public Interest Areas. The proposed pipeline route would cross a total of seven recreation and special interest areas (one area would be crossed twice) (**table 3.7-2**). The route does not cross any ACEC, Wilderness or Wilderness Study Areas, or Wild and Scenic Rivers. Of the seven recreation and special interest areas that would be crossed by the proposed route, five are located in Colorado. Two of the seven recreation and special interest areas that would be crossed by the proposed route are located in Wyoming. The pipeline would not cross any developed recreation areas (i.e., campgrounds, picnic grounds, or organized recreation areas, such as baseball fields).

Pipeline construction would have temporary impacts on recreational traffic and use patterns. Sightseers, hikers, wildlife viewers, hunters, off-highway vehicle users, and mountain bikers would be displaced from the immediate area during construction. Issues in common to all these recreational and special interest areas are soil disturbance and revegetation, repair and maintenance of public access roads, and WIC coordination with the agency managers to minimize conflicts between construction activities and the recreational uses for which these special areas were established. It is anticipated that lease agreements between WIC and the BLM and state land managers would include measures to ensure that the ecological functions of these areas are maintained, and recreational conflicts are avoided or minimized. Of most concern are:

1. Natural Areas: The pipeline would traverse three natural areas in the State of Colorado, the Juniper Mountain Conservation Area, the Middle Yampa River Megasite, and the Deception Creek Conservation area. These areas are listed by the Colorado Natural Heritage Program as a fair to good occurrence of a plant community that is imperiled on a global scale.

2. Piceance Creek SWA, Bitter Brush SWA, and Little Hills Game Experiment Station: Potential conflicts could occur between hunter use and pipeline construction if the Piceance Project constructs across these areas during hunting seasons. WIC would coordinate with the wildlife managers in both states to ensure continued hunter access during hunting seasons. Research occurs on big game species at the Little Hills Game Experiment Station and CDOW personnel reside in homes on the property. The station provides big and small game hunting opportunities, as well as fishing opportunities.

3. Overland and Cherokee Trails: There are no historic interpretation signs or areas at the proposed WIC Overland Trail or Cherokee Trail crossings, and no well-preserved wagon ruts are evident.

Visual Resources

Visual impacts associated with the construction ROW and additional temporary workspace areas would include the removal of existing vegetation and the exposure of bare soils, as well as earthwork and grading scars associated with heavy equipment tracks, trenching, blasting, rock formation alteration or removal, and machinery and tool storage. Other visual effects may result from the removal of large individual trees that have intrinsic aesthetic value; the removal or alteration of vegetation that may currently provide a visual barrier; or landform changes that introduce contrasts in visual scale, spatial characteristics, form, line, color, or texture.

Visual impacts would be greatest where the proposed pipeline route parallels or crosses roads or trails, is in proximity to Key Observation Points, or is otherwise visible to recreationists. The impact of vegetation removal would be shortest on rangeland consisting of short grasses and hay fields, where the reestablishment of vegetation following construction would be relatively fast (generally less than 5 years). The impact would be greater on shrub rangeland, which may take more than 20 years to regenerate. The greatest potential visual impact would result from the removal of mature pinyon pine, Utah Juniper, ponderosa pine, and cottonwood trees, which would take longer than other vegetation types to regenerate and would be prevented from reestablishing on the permanently maintained 50-foot-wide ROW. Topographic alterations such as sidehill cuts that may be necessary to construct the pipeline would be

restored during ROW restoration. The visibility of such alterations would diminish over time as the affected areas age and begin to blend with the surrounding landscape.

Visual Resource Management (VRM) classes are assigned to the various landscapes managed by BLM. The BLM VRM classes range from Class I to Class IV, with Class I being the most restrictive and Class IV being the least restrictive. In general, the proposed project would cross lands designated as Class III or Class IV. A Class III designation allows for changes in the visual landscape caused by a management activity, but should remain an insignificant portion of the visual strength of the existing landscape. VRM Class IV lands may undergo management activities that significantly alter the characteristic landscape and dominate the view. **Table 3.7-4** shows the VRM classes for BLM lands crossed by the proposed Piceance Project.

To minimize construction impacts on visual resources, the proposed pipeline route would be located, where feasible, adjacent to existing utility corridors to minimize construction impacts on visual resources. This alignment would minimize impacts to viewsheds with existing linear disturbance. In areas where collocation of the pipeline is not possible, for engineering and/or construction reasons, WIC aligned the pipeline to avoid aesthetic features to the extent possible. Following construction, topographical contours would be returned to their preconstruction condition. Therefore, construction and operation of the proposed Piceance Project pipeline facilities would be consistent with the objectives and definitions of VRM Class III and VRM Class IV designations. WIC has consulted with the BLM to ensure that the proposed project would not conflict with the VRM designations.

For aboveground facilities, the impacts on visual resources from each individual facility would depend on the pre-construction condition and the visibility from the surrounding area. The following discussions provide the landscape context for each compressor station, which are the major project aboveground structures.

1. Greasewood and Wamsutter Compressor Stations. Both of these stations are existing facilities. At the CIG Greasewood Compressor Station, the Piceance Project would require the addition of a single new compressor within a new building within the existing fenced commercial area. The Piceance Project does not include any construction at the CIG Wamsutter Compressor Station. Therefore, the project would not change any existing visual resource at these locations.

2. Other aboveground facilities: Many of the other aboveground facilities (metering station sites, pigging facilities, and some block valves) are located at or adjacent to compressor stations. Aboveground facilities proposed within existing compressor station sites would be located within a fenced, previously disturbed area. Installation of new aboveground facilities within the existing compressor stations would help to minimize impacts. One pigging facility (MP 54) and all but one of the remaining block valves would be located within the permanent pipeline ROW next to lightly traveled roads that would generally be out of public view.

Table 3.7-4
Visual Resource Management Classification for BLM Lands Crossed by the Piceance Project

State/County	Resource Area	Milepost From	Milepost To	VRM Classification[1]
WYOMING				
Sweetwater County	Rawlins	0.3	1.3	IV
	Rawlins	1.4	2.3	IV
	Rawlins	3.5	4.5	IV
	Rawlins	5.5	6.5	III
	Rawlins	7.5	8.5	III
	Rawlins	9.5	10.5	III
	Rawlins	11.6	12.6	III
	Rawlins	13.6	13.8	III
	Rawlins	14.6	15.6	III
	Rawlins	16.7	17.5	III
	Rawlins	17.9	19.0	III
	Rawlins	19.6	20.1	III
	Rawlins	21.1	23.0	III
	Rawlins	23.5	25.4	III
	Rawlins	25.4	29.8	IV
	Rawlins	29.8	51.9	III
COLORADO				
Moffat County	Little Snake	51.9	52.9	III
	Little Snake	54.4	58.1	III
	Little Snake	59.9	60.4	III
	Little Snake	61.4	61.6	III
	Little Snake	62.7	63.2	III
	Little Snake	63.7	64.2	III
	Little Snake	66.0	66.8	III
	Little Snake	67.3	67.6	III
	Little Snake	70.0	70.5	III
	Little Snake	72.0	73.1	III
	Little Snake	76.0	76.6	III
	Little Snake	77.7	77.7	III
	Little Snake	78.5	79.4	III
	Little Snake	79.6	80.1	III
	Little Snake	80.1	80.4	III
	Little Snake	80.9	81.1	III
	Little Snake	83.5	85.1	III
	Little Snake	88.8	89.2	III
	Little Snake	94.7	94.7	III
	Little Snake	95.0	95.2	III
	Little Snake	96.3	96.7	III
	Little Snake	98.1	98.1	III
	Little Snake	98.5	99.0	III
	White River	104.1	104.5	n/a
	White River	104.9	105.1	III
Rio Blanco County	White River	110.6	110.8	III
	White River	116.6	116.9	III
	White River	122.8	123.1	III
	White River	123.4	123.8	III
	White River	128.3	128.5	III
	White River	129.4	130.0	III

Table 3.7-4 (Continued)

State/County	Resource Area	Milepost From	Milepost To	VRM Classification[1]
	White River	130.2	130.5	III
	White River	130.9	130.9	n/a
	White River	131.6	131.7	III
	White River	134.2	134.7	III
	White River	135.4	141.7	III

[1] Key to VRM Classes:

- Class I Objective: To preserve the existing character of the landscape. The level of change to the characteristic landscape should be very low and must not attract attention.
- Class II Objective: To retain the existing character of the landscape. The level of change to the characteristic landscape should be low.
- Class III Objective: To partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate.
- Class IV Objective: To provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high.

3.8 Cultural Resources

Section 106 of the NHPA of 1966, as amended, requires that the Commission take into account the effects of its undertakings (including the issuance of permits or Certificates) on historic properties listed on or eligible for listing on the NRHP, and afford the ACHP an opportunity to comment on the undertaking. The FERC is using the services of the applicant (WIC) to prepare information, analyses, and recommendations necessary to meet our responsibilities under Section 106 and the ACHP's implementing regulations at 36 CFR 800. The FERC also consults with SHPOs pursuant to section 101(b)(iii) of the NHPA and 36 CFR 800.3 through 800.6.

3.8.1 Results of Cultural Resources Survey

As part of its application, WIC provided the FERC with its inventory report and initial consultations with the Colorado and Wyoming SHPOs, the BLM, and Native American tribes. The inventory report documents the results of literature reviews, site file searches, cultural resources inventory, and test excavations for WIC's proposed facilities in Colorado and Wyoming (Metcalf and Slaughter 2005). In addition, the inventory report included WIC's Monitoring and Open Trench Inspection Plan and proposed Treatment Plan. WIC also provided a plan for unanticipated discoveries during construction. The inventory report is currently being reviewed by the FERC and the BLM.

The Colorado portion of the proposed pipeline route measures 89.8 miles in length, of which 59.3 miles parallel existing pipelines and powerline ROWs. Approximately 53 miles of the proposed route parallels and is adjacent to a previously inventoried pipeline. Where the proposed pipeline route parallels and is adjacent to a previously inventoried pipeline, WIC surveyed a 200-foot-wide corridor. The edge of the 200-foot-wide corridor was located 50 feet from the proposed centerline on the side with the existing pipeline and 150 feet from the centerline on the other side. Where the proposed pipeline route is not adjacent to a previously inventoried pipeline, WIC surveyed a 300-foot-wide corridor centered on the staked centerline of the pipeline route. Approximately 14.7 miles of the proposed pipeline is entirely within previously inventoried corridors (MP 81.6 to MP 87.1, MP 90.0 to MP 96.4, and MP 99.0 to MP 101.8); therefore, no new inventory was conducted in these areas. In addition to the proposed pipeline route, WIC surveyed 40 acres of temporary use areas that extend beyond the 200- to 300-foot-wide centerline inventory corridor, 1.6 miles (19 acres) of access roads, and 13 acres for aboveground facilities including pipeyards and contractor yards.

The Wyoming portion of the proposed pipeline route measures 51.9 miles in length, all of which parallels existing pipeline ROWs. Approximately 49.2 miles of the proposed route parallels and is adjacent to a previously inventoried pipeline. Where the proposed pipeline route parallels and is adjacent to a previously inventoried pipeline, WIC surveyed a 200-foot-wide corridor. The edge of the 200-foot-wide corridor was located 50 feet from the proposed centerline on the side with the existing pipeline and 200 feet from the centerline on the other side. Where the proposed pipeline route is not adjacent to a previously inventoried pipeline, a 300-foot-wide corridor centered on the staked centerline of the pipeline route was surveyed. In addition to the proposed pipeline route, WIC surveyed 2 acres of temporary use areas that extend beyond the 200- to 300-foot-wide centerline inventory corridor, 5.2 miles (63 acres) of access roads, and 10 acres for aboveground facilities including pipeyards and contractor yards.

For both Colorado and Wyoming, a 100-foot-wide corridor was surveyed along each access road that may require blading and filling as a result of use by construction equipment and vehicles. For block facilities, WIC surveyed the area as staked in the field. One extra workspace in and adjacent to a compressor station, two reroutes, and approximately 0.4 mile of access road remain to be surveyed in Wyoming. Additional access roads requiring survey may be identified. Two approximately 10-acre staging areas, two reroutes, and one extra workspace in Colorado remain to be surveyed. Survey of these remaining areas is scheduled for April 2005.

Colorado

To date, surveys in Colorado have located 123 cultural resource sites and 30 isolated finds. Of these, 114 sites are in, or presumed to be in, the pipeline construction corridor or area of potential effects (APE). Of the 114 sites, 93 are prehistoric, 19 are historic, and two are multicomponent sites containing both prehistoric and historic components. The prehistoric sites include open camps, habitation sites, and lithic scatters. The historic sites include roads, ditches, and debris scatters. Twenty-two of these sites are newly recorded and 92 are previously recorded sites identified during the site file searches. Of the 92 previously recorded sites, 51 are assumed buried. The isolated finds and 45 of the 114 sites are recommended or have been officially determined not eligible for listing on the NRHP. No additional investigation of these resources is recommended. Thirty-five of the sites are recommended or have been officially determined eligible for the NRHP. Thirty-four of the 51 buried sites will need additional evaluation for a conclusive recommendation of eligibility. These 34 sites are presumed eligible until the evaluation has been completed. No Traditional Cultural Properties have been identified to date.

Proposed treatment options for the 35 recommended or determined eligible sites and 34 buried sites needing additional data include avoidance through reroutes or construction restrictions, data recovery prior to and after construction, monitoring, and open trench inspection (OTI). A limitation on the construction ROW width or technique is recommended for one of the eligible sites in the APE, which straddles the Colorado and Wyoming state line (this site was counted as a separate site for each state). One of the eligible sites is recommended for pre-construction data recovery. Thirteen of the eligible sites are recommended for pre-construction testing to assess their information potential. Nineteen of the eligible sites are recommended for monitoring and OTI, which is proposed along 35.8 miles of the pipeline route in Colorado. The remaining eligible site is the historic Maybell Canal. The segment of the canal crossed by the pipeline route is a non-contributing segment of the site's overall NRHP eligibility. No additional investigation of this resource is recommended. The number of sites recommended for post-construction data recovery would be determined during monitoring and OTI. Protective fencing and limiting the construction ROW width is recommended for an eligible site located outside of the current APE, but within an area where WIC has requested extra ROW width.

Wyoming

To date, surveys in Wyoming have located 60 cultural resource sites and 24 isolated finds. Fifty-six of the 60 sites are in located in the APE. Of these 56 sites, 47 are prehistoric, eight are historic, and one is a multicomponent site. The prehistoric sites include open camps, lithic procurement sites, and lithic scatters. The historic sites include trails, roads, structures, and debris scatters. Nineteen of these sites are newly

recorded and 37 are previously recorded sites identified during the site file searches. Thirty-nine of the 56 sites are recommended or have been officially determined not eligible for listing on the NRHP. No additional investigation of these resources is recommended. One site is in the SHPO database as not eligible, but has been recommended as eligible in past inventories. Sixteen of the sites are recommended or have been officially determined eligible for the NRHP. No Traditional Cultural Properties have been identified to date.

Proposed treatment options which would be appropriate for each site type for the 16 sites recommended or determined eligible include avoidance through reroutes or construction restrictions, data recovery prior to and after construction, monitoring, and OTI. Reroutes and/or limitations on construction ROW widths or techniques are recommended for three of the 16 eligible sites, including one site that straddles the Colorado and Wyoming state line and the historic Cherokee Trail. The pipeline route crosses a non-contributing segment of one eligible site (Overland Trail); however, a limitation on the construction ROW width is recommended for this site. One of the eligible sites is recommended for pre-construction data recovery. A restricted construction ROW width, as well as pre-construction data recovery is recommended for one of the eligible sites. Five of the sites are recommended for pre-construction testing to assess their information potential (reroutes may be feasible for two of these sites). Five of the eligible sites are recommended for monitoring and OTI, which is proposed along 19.3 miles of the pipeline route in Wyoming. One additional site, which is listed in the SHPO database as not eligible for the NRHP, also is recommended for monitoring and OTI based on the potential for subsurface cultural deposits. The number of sites recommended for post-construction data recovery would be determined during monitoring and OTI.

3.8.2 Native American Consultation

Section 101(d)(6) of the NHPA requires federal agencies, as part of their responsibilities under Section 106, to consult with Indian tribes to identify properties of traditional, religious, and cultural importance that may be affected by a project. To assist the Commission in complying with this requirement, WIC sent initial consultation letters to eight Native American tribes on December 13, 2004. The letters described the project and provided the tribes with the opportunity to comment on the project and identify sites or places that might be of religious or cultural significance to the tribes. WIC will conduct follow-up telephone calls to the tribes in February 2005. To date, one of the tribes has responded to WIC. **Table 3.8-1** lists the Native American tribes that have been contacted and summarizes concerns they have raised. To assist the Commission, WIC has indicated that they are working with the various Native American tribes and intend to continue consultation (including consultation on treatment plans as necessary) throughout the environmental review and construction phase of the project. In addition, the FERC sent the NOI to these same tribes. To date, only the Southern Ute Indian Tribe has responded to our NOI (July 21, 2004).

3.8.3 Construction and Operational Impacts

Project impact or effects include not only the physical disturbance of a historic property, but also may include the introduction, removal, or alteration of various visual or auditory elements, which could alter the traditional setting or ambience of the property. In consultation with the Colorado and Wyoming SHPOs and the BLM, the FERC would determine whether construction of the proposed project would affect any

Table 3.8-1
Native American Consultations for the Piceance Project

Tribe	Response Date	Status
Eastern Shoshone Tribe	January 4, 2005	The tribe is interested in the project. WIC will send the tribe a copy of the survey report and will follow up with tribe regarding a possible field visit in spring or summer.
Northern Arapaho Tribe	None[1]	
Northern Ute Tribe	None[1]	
Northwestern Band of the Shoshone Nation	None[1]	
Shoshone-Bannock Tribe	None[1]	
Southern Ute Tribe	July 21, 2004	The tribe does not object to the proposed project, but requests notification of inadvertent discoveries.
Ute Mountain Ute Tribe	None[1]	
White Mesa Ute Tribe	None[1]	

[1] To date, no response has been received.

properties listed on, or eligible for listing on, the NRHP. If a property would be adversely affected, mitigation would be proposed. Mitigation may include, but not be limited to, one or more of the following measures: 1) avoidance through the use of realignment of the pipeline route, relocation of temporary extra workspace, or changes in the construction and/or operational design; 2) data recovery, which may include the systematic professional excavation of an archaeological site or the preparation of photographic and/or measured drawings documenting standing structures; and 3) the use of landscaping or other techniques that would minimize or eliminate effects on the historic setting or ambience of standing structures or historic trails.

In Colorado, cultural resources surveys still need to be completed for two 10-acre staging areas, two reroutes, and one extra workspace. To date, 35 sites within the APE are recommended or have been officially determined eligible for the NRHP and 34 buried sites need additional evaluation for a conclusive recommendation of eligibility. A limitation on the construction ROW width is recommended for one of the eligible sites. One of the eligible sites is recommended for pre-construction data recovery, 13 are recommended for pre-construction testing, and 19 are recommended for monitoring and OTI. No additional investigation is recommended for the remaining eligible site because the pipeline route crosses a non-contributing segment of the site. The number of sites recommended for post-construction data recovery would be determined during monitoring and OTI. Protective fencing and limiting the construction ROW width is recommended for an eligible site located outside of the current APE, but within an area where WIC has requested extra ROW width.

In Wyoming, cultural resources surveys still need to be completed for one extra workspace in and adjacent to a compressor station, two reroutes, and approximately 0.4 mile of access road. Additional access roads requiring survey may be identified. To date, 16 sites within the APE are recommended or have been officially determined eligible for the NRHP. Reroutes and/or limitations on construction ROW widths or techniques are recommended for three of the eligible sites. The pipeline route crosses a non-contributing

segment of one eligible site; however, a limitation on the construction ROW width is recommended for this site. One of the eligible sites is recommended for pre-construction data recovery, five are recommended for pre-construction testing, and five are recommended for monitoring and OTI. A limitation on the construction ROW width and pre-construction data recovery is recommended for the remaining eligible site. One additional site, which is listed in the SHPO database as not eligible for the NRHP, also is recommended for monitoring and OTI based on the potential for subsurface cultural deposits. The number of sites recommended for post-construction data recovery would be determined during monitoring and OTI.

The process of fully complying with Section 106 of the NHPA has not yet been completed for the Piceance Project. Surveys and evaluative testing have not been completed and reroutes to avoid eligible sites have not been finalized. Once evaluations are complete and it has been determined which sites can or cannot be avoided, the FERC, in consultation with the BLM and SHPOs, would make final determinations of NRHP eligibility and project effects. For historic properties that would be adversely affected, the FERC and the BLM, in consultation with the SHPOs, would review the adequacy of WIC's proposed Treatment Plan. Once the Treatment Plan is approved, WIC would implement the specified treatment measures before notice to proceed with project construction is authorized in any given area. Implementation of treatment would occur only after approval of the proposed project by both the FERC and the BLM. The FERC would ensure that treatment is carried out.

To ensure that the FERC's responsibilities under the NHPA and its implementing regulations are met, **we recommend that WIC defer construction and use of facilities and staging, storage, and temporary work areas, and access roads until:**

a. **WIC files with the Secretary all remaining cultural resource inventory and evaluation reports, and necessary avoidance or treatment plans;**

b. **WIC files with the Secretary the BLM's and the Colorado and Wyoming SHPOs' comments, as applicable, on all reports and plans; and**

c. **the Director of OEP reviews and approves all reports and plans and notifies WIC in writing that it may proceed.**

All material filed with the Commission containing location, character, and ownership information about cultural resources must have the cover and any relevant pages therein clearly labeled in bold lettering: "CONTAINS PRIVILEGED INFORMATION – DO NOT RELEASE."

3.9 Socioeconomics

3.9.1 Population

In 2000, the population of Colorado was 4,301,261 and the population of Wyoming was 493,782. In part due to energy development activities, Colorado's population climbed by 5.8 percent to 4,550,688 in 2003. Wyoming's population increased by 1.5 percent to 501,242 over the same period (U.S. Census Bureau 2004). The three counties in which the proposed pipeline route lies, Sweetwater, Wyoming, and Moffat and Rio Blanco, Colorado, are largely rural, generally with a single population center in proximity to the route. Carbon County in south-central Wyoming and Garfield and Routt Counties in northwestern Colorado, although not directly affected by the proposed route, border those directly affected counties, and thus may experience indirect or secondary effects from the proposed project and are included in the analysis where appropriate.

The least populous county crossed by the proposed pipeline corridor is Rio Blanco County, Colorado, which had a population of 5,938 in 2003. The most populated county directly affected by the proposed pipeline route is Sweetwater County, Wyoming, which had a population of 37,018 in 2003. A majority of the population in Sweetwater County is centered around Rock Springs, Wyoming, which is about 70 miles west of the proposed northern terminus at the Wamsutter Compressor Station. **Table 3.9-1** describes recent population change for the proposed project area.

Table 3.9-1
Population Change in Project Region

			Change, 2000 to 2003	
	2000	2003	Absolute	Percent
Carbon, WY	15,639	15,302	(337)	-2.2
Sweetwater, WY	37,613	37,018	(595)	-1.6
Garfield, CO	43,791	47,611	3,820	8.7
Moffat, CO	13,181	13,527	346	2.6
Rio Blanco, CO	5,986	5,938	(48)	-0.8
Routt, CO	19,690	20,788	1,098	5.6

Source: U.S. Census Bureau, Population Division 2004.

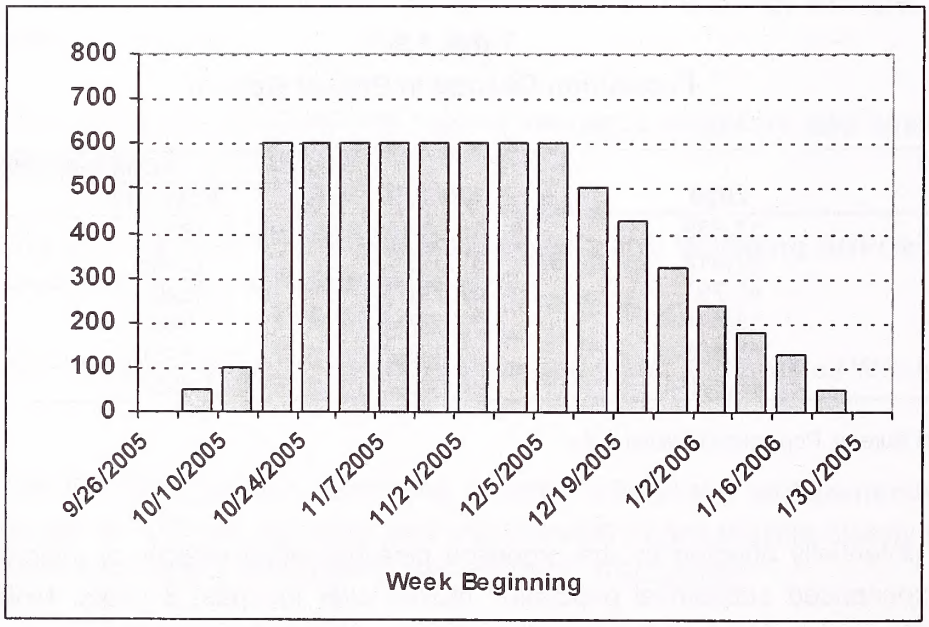
Of the counties potentially affected by the proposed pipeline, either directly or indirectly, only Routt and Garfield have experienced substantial population growth over the past 3 years. Moffat County realized moderate population gains. Much of the growth in northwestern Colorado has been tied to the substantial energy exploration and development activity in recent years. Population changes in Wyoming have been relatively limited in scale, with both potentially affected counties losing population between 2000 and 2003.

Potential impacts to the existing socioeconomic environment of the proposed project area would result primarily from the temporary influx of a relatively higher number of construction workers. Little long-term impact would result because WIC anticipates adding only one permanent position to its existing workforce.

WIC anticipates a peak of about 600 construction personnel employed on the project during the latter months of 2005, potentially extending into 2006. Construction personnel would consist of WIC employees, contractor employees, construction inspection staff, and environmental inspection staff. WIC is planning to construct the pipeline in two spreads, with construction activity occurring simultaneously on each spread. The applicant anticipates up to 300 construction and inspection personnel associated with each pipeline spread. Construction of additional compression at the CIG Greasewood Compressor Station would require a construction workforce of 50 to 100 personnel. WIC has proposed to commence construction of the pipeline and metering stations between August and October 2005. Construction would continue for 16 to 20 weeks, such that pipeline completion would be anticipated to occur between November 2005 and February 2006. The construction schedule for the compressor has not been finalized; however, WIC has targeted completion by April 2006. Some follow-up restoration may be required in the spring of 2006.

Construction workforce requirements for the two spreads would ramp up quickly from 50 the first week to 600 within the first month. Assuming construction would begin in October, the size of the construction workforce would remain at about 600 workers through October and much of November, before scaling back below 200 workers during the last month of construction (**figure 3.9 1**). WIC's proposed construction plan is for activity to begin at the southern ends of each spread and proceed northward.

Figure 3.9-1. Projected Construction Workforce – Piceance Project



WIC, through its construction contractors and subcontractors, would attempt to hire temporary construction staff from the local population (i.e., currently residing in nearby areas of Colorado and Wyoming) to minimize additional demands on housing. With competing demands from oil and gas development and other projects, as well as the skills required for many project related positions, we anticipate that no more than 8 percent of the total construction workforce could be hired locally. The remaining workers (approximately 550 at the peak) would be non-local personnel. Note that the local/non-local status could change for some workers as

the specific location changes. For example, residents of Rock Springs employed on Spread 2 may temporarily relocate to Craig, but then resume residency in Rock Springs as project construction moves northward.

Environmental inspection staff would likely consist entirely of non-local employees based on the specialized skills and experience required for the job.

Population impacts from the influx of temporary construction and inspection personnel would be temporary and dispersed along the proposed route. Due to the temporary and transitory nature of the work, most non-local workers would not be accompanied by spouses, other family members or non-family partners. Thus, the overall population impact would be only moderately higher than the number of workers (i.e., 20 to 40 percent). Nevertheless, the temporary population impacts in the smaller communities would be moderate. Any specific operation and maintenance task which cannot be completed by WIC's staff would be completed on a contractual and as-needed basis.

Given the limited impact on its permanent workforce, secondary employment effects would be limited. Thus, the project would not have a significant long-term impact on the permanent population.

3.9.2 Employment and Economics

In 2004, Moffat and Rio Blanco Counties had relatively small labor forces (6,715 and 3,449, respectively). In Wyoming, about 10 percent of the civilian labor force resides within the two counties that would be affected by the proposed pipeline route. Of the two counties, Carbon County has the smaller civilian labor force with 7,940 persons, and Sweetwater County has the larger civilian labor force with a total of 20,855 persons.

Unemployment rates across the project area have declined over the past year, and now range from 2.1 percent in Routt County to 4.9 percent in Moffat County in December 2004 (Colorado Department of Labor 2005; Wyoming Department of Employment 2005). Statewide unemployment rates for the same period were 5.0 percent in Colorado and 3.6 percent in Wyoming (**table 3.9-2**). Given the limited size of the local labor force in these more rural counties, the number of available workers is very low, for example, 94 unemployed in Rio Blanco County and 264 unemployed in Carbon County.

Table 3.9-2
Labor Market Conditions

	December 2004				Average Annual Unemployment Rate - 2004
	Labor Force	Employed	Unemployed	Unemployment Rate	
Carbon, WY	7,636	7,371	264	3.5%	3.9%
Sweetwater, WY	21,440	20,791	649	3.0%	3.1%
Garfield, CO	27,032	26,125	907	3.4%	3.3%
Moffat, CO	6,582	6,260	322	4.9%	5.6%
Rio Blanco, CO	3,237	3,143	94	2.9%	3.7%
Routt, CO	12,957	12,688	269	2.1%	3.2%

Sources: Colorado Department of Training and Employment 2005; Wyoming Department of Employment 2005.

In northwestern Colorado, the primary employment sectors of the counties crossed by the proposed pipeline route are agriculture, oil and gas development, trade and construction, while mining (both mineral and oil and gas development), public administration, and trade and tourism/travel also are important employment sectors in Wyoming. The latter is due in part to the I-80 corridor across southern Wyoming.

In 2002, per capita personal income was $33,723 in Colorado and $31,021 in Wyoming. The three counties traversed by the proposed pipeline route have per capita incomes ranging from $24,136 in Moffat County to $30,400 in Sweetwater County, all below their respective statewide averages (U.S. Bureau of Economic Analysis 2004).

Local businesses would benefit from demands for goods and services generated by the temporary construction workforce. Benefits in the form of higher business volume would accrue to many retail, lodging, eating and drinking, convenience stores/fueling stations, and other business establishments across the entire proposed route and in nearby communities. Estimated spending for such goods and services, based on WIC's workforce estimates and daily spending assumptions, would total about $5.0 million during the construction period.

In addition, local purchases for materials necessary with the Piceance Project would be made. WIC estimates that local purchases made by personnel associated with the construction of the Piceance Project would primarily include consumables, fuel, and miscellaneous construction-related materials (e.g., office supplies).

The economic stimulus provided by the project would result in temporary secondary impacts on employment as local establishments add staff or increase hours worked by existing staff to accommodate the increases in demand. Long-term construction projects may generate between 0.7 and 1.1 additional jobs for each direct job associated with the project. However, given the temporary and rapidly moving pace of the Piceance Project construction, the secondary impacts would be expected to be on the order of about 0.35 jobs, a peak of about 210 jobs across the entire region.

Of greater significance to state and local revenues would be the sales or use taxes on pipe and other materials and installed equipment associated with the project. Such purchases are subject to sales tax if the items are manufactured in-state, or use tax when purchased outside the respective states and imported into state. Typically, project owners and contractors are entitled to a credit for taxes paid in another jurisdiction (e.g., the point of purchase or manufacture), but generally have an option to specify the point of delivery as the location for purposes of taxation. Sweetwater County imposes a use tax, as does Rio Blanco County. Moffat County does not impose a use tax. WIC's estimated sales/use tax obligation, based on current tax rates and assuming it exercises the option for local taxation, is $632,000 in Wyoming and $1.31 million in Colorado. In Wyoming about 80 percent of the total would accrue to the state, the remainder distributed among the counties based on the value of installed materials and equipment. The distribution in Colorado would be about 75 percent to the state and 25 percent to Rio Blanco County.

WIC estimates total labor costs, including direct compensation and fringe benefits, of $48 million during construction (about one-third in Wyoming and two-thirds in Colorado). Individual workers who are Colorado residents, or who work in Colorado on a temporary basis would incur an income tax liability on those

earnings. This would temporarily increase the tax revenue for the state, although the increase would be relatively small.

Long-term income associated with WIC operations would be negligible due to the limited direct employment impact, although additional income may be realized by contractors servicing the pipeline.

3.9.3 Housing

Housing availability within the project area is a function of the housing stock, recent economic and population growth, the inventory of short-term accommodations, such as recreational vehicle (RV) parks and hotel and motel rooms, and demand for housing from other sources. In 2000, the total housing supply ranged from 2,855 units in Rio Blanco County to 17,336 units in Garfield County. Carbon County registered a total housing supply of 8,307 units (**table 3.9-3**).

Table 3.9-3
Housing Inventory

	Total Units – 2000	Available Rental Units – 2000	Building Permits 2000 – 2003
Carbon, WY	8,307	360	131
Sweetwater, WY	15,921	680	190
Garfield, CO	17,336	217	1,876
Moffat, CO	5,635	189	180
Rio Blanco, CO	2,855	127	60
Routt, CO	11,217	956	1,359

Sources: U.S. Census Bureau 2004; Colorado Division of Local Government 2004; Wyoming Department of Administration and Information 2004.

A key indicator of housing availability to meet short-term needs is the number of available rental units. Among the rural counties in the western portion of the project area the number of such units recorded in the 2000 Census ranged from 127 units in Rio Blanco to 680 units in Sweetwater County. In the case of the latter, most of those units were in Rock Springs or Green River, a considerable distance from the proposed route.

A combined 561 new units have been issued permits in Rio Blanco, Moffat, Carbon, and Sweetwater Counties since the 2000 Census (U.S. Census Bureau 2004; Colorado Division of Local Government 2004; Wyoming Department of Administration and Information 2004). Significant new construction has occurred in Routt and Garfield Counties, although many of the new housing units were single-family residences.

A second, more critical component of local housing markets is the inventory of short-term accommodations. Such accommodations include RV spaces, motel and hotel rooms and mobile home spaces. In some instances, recreational cabins and seasonal housing for migratory workers also may be available. With the exception of Rio Blanco County with 404 units, the inventory of such accommodations is relatively larger in most of the counties because tourism, travel, and outdoor recreation play major roles in the local economies (**table 3.9-4**).

Table 3.9-4
Estimated Temporary Housing Inventory, Winter 2004

	RV Spaces	Motel/Hotel Rooms	Mobile Home Spaces	Total	Temporary Housing Availability
Carbon, WY	395	1,367	2,583	4,345	Limited
Sweetwater, WY	215	1,718	3,696	5,629	Limited
Garfield, CO	196	>1,000	NA	>1,196	Very Limited
Moffat, CO	221	600	858	1,679	Fair to Good
Rio Blanco, CO	108	143	153	404	Very Limited
Routt, CO	105	>1,000	NA	>1,105	Good
Total	**1,140**	**>5,828**	**7,290**	**>14,358**	

Note: RV spaces exclude some or all spaces in national forest and state park campgrounds. Only some, unknown number, of the mobile home spaces are available at any one time and may not be available for short term use.

Sources: Appendix 5A – Entrega Gas Pipeline Project and Sammons/Dutton 2004.

The short-term accommodations tend to be geographically concentrated in the largest communities in each county, although there are some RV parks and smaller motels in outlying communities, particularly along the I-80 corridor in Sweetwater County and in southwestern Carbon County.

Vacancy surveys of rental housing in Wyoming indicate limited availability across the study area, with estimated vacancy rates of under 1.0 percent in Sweetwater County and 8.4 percent in Carbon County. However, the latter represents only about 50 units. (Wyoming Housing Database Partnership 2004). Vacancy rates for rental housing are not reported for rural Colorado, but anecdotal reports suggest limited availability in many communities, although housing is reportedly more available in the Craig area following the recent completion of a major retrofit project at the nearby powerplant. Anecdotal information also indicates limited availability of short-term lodging across most of the western portion of the study area, particularly in Sweetwater and Rio Blanco Counties, due to ongoing energy resource development and seasonal tourism and hunting demand. Given the above, housing availability can be characterized as limited to very limited in most counties.

The project construction period would be relatively short and most non-local workers likely would be unaccompanied during their work tenure on the project. Consequently, it is expected that most project workers would use temporary housing, such as hotels/motels, RV parks, and campgrounds. Some workers would likely resort to renting furnished apartments and homes, due to availability constraints of other accommodations, though this is generally less preferable due to landlord and property management company preferences for extended term commitments. Most of the temporary workers would seek housing in the more populated, service-oriented towns located within a reasonable commuting distance to the work site. As the more convenient options fill, workers would drive further, seeking alternatives in smaller communities, even using campgrounds on the national forest or at state parks or camping on public lands despite the fact that those locations have 14-day stay limits. As stated in the POD, construction personnel would not be allowed to camp on public lands during construction of the project except in designated campgrounds. However, WIC does not specify what measures it would take to ensure that these

unauthorized camping activities do not occur. **We recommend that in any comments on the draft EIS or in a separate document submitted prior to the closing of the draft EIS comment period, that WIC explain how it or its contractor would accommodate the project construction workforce if all temporary housing and private camping areas were occupied in the primary communities (Meeker, Craig, Wamsutter) near the work area, as well as developed campgrounds on public lands.**

Furthermore, some individuals may desire to relocate during the term of the project as the active area in each spread moves along the corridor. The net effect of these factors is that the temporary housing demand would be dynamic. An assessment of the temporary housing demands, based on a 15 percent assumed local hiring, the locations and driving distances involved and the availability of temporary housing yielded the temporary housing demand profile shown in **table 3.9-5**.

Table 3.9-5
Projected Temporary Housing Demand Requirements, Selected Months, 2005/2006

	Projected Non-Resident Workers				Percent Distribution, By Month			
	October	November	December	January	October	November	December	January
Carbon, WY	54	93	75	21	19%	18%	17%	13%
Sweetwater, WY	48	88	70	21	17%	17%	15%	13%
Garfield, CO	77	138	121	43	27%	27%	27%	26%
Moffat, CO	14	25	20	6	5%	5%	4%	4%
Rio Blanco, CO	54	93	96	43	19%	18%	21%	26%
Routt, CO	42	75	71	29	15%	15%	16%	18%
Total	289	512	453	163	100%	100%	100%	100%

Source: Sammons/Dutton 2005.

Temporary housing demand, assuming a worst-case of one worker per unit, is projected at 289 units in October, rising to 512 units in November when construction on Spreads 1 and 2 is proceeding at full pace. Demand would moderate slightly in December, easing substantially by the end of January 2006. These estimates do not include as many as 85 additional workers associated with the addition of compression at the Greasewood Compressor Station, if that schedule overlaps with that on Spread 1. Housing demand would be heaviest in Moffat and Rio Blanco Counties, but only slightly lower in Carbon and Sweetwater Counties. Availability constraints in those counties are likely to result in commuting from nearby locations in Routt and Garfield Counties. Consequently, for a relatively short duration, some smaller communities could experience extremely tight market conditions for temporary housing.

The temporary housing demands associated with the project would compete with summer tourism and fall hunting demands across much of the region, resulting in higher nightly lodging rates, more limited availability and displacement of demand to other locations when local motels and RV campgrounds are full. To the extent that such displacement occurs, it would diminish the economic benefits associated with construction worker spending.

Housing requirements for the continuing operation and maintenance of the pipeline would be negligible to nonexistent.

3.9.4 Public Services and Facilities

Table 3.9-6 outlines selected public services and facilities serving the proposed project area. In general, public service availability is a function of overall county population and size of the largest community in the county. Law enforcement is provided by multiple providers including the respective state patrols, county sheriffs and local police departments. In many instances, mutual aid/cooperative agreements among agencies allow members of one agency to provide support or backup to the other agencies in emergency situations.

A network of fire departments and districts provide fire protection and suppression services across the region. Many of the fire districts across the region are staffed by volunteers and are housed in stations located in the larger communities. This can increase response time to incidents. Federal land management agencies also maintain wild land and forest fire suppression capabilities in the region, though these capabilities are not generally staffed for quick response dispatch.

Table 3.9-6
Existing Public Services and Facilities

	Police/Sheriff Departments[1]	Fire Departments[2]	Medical Facilities[3]
COLORADO			
Rio Blanco	3	2	2 Hospitals
Moffat	2	2	1 Hospital
WYOMING			
Sweetwater	4	9	1 Hospital

[1] Capitolimpact.com. http://www.captiolimpact.com, accessed 10/08/03. Does not include special law enforcement units for universities.
[2] Firehouse Network. http://www.fire-ems.net, accessed 10/13/03. Includes volunteer, district, city, and town departments, but does not include departments and services offered by the BLM or the Department of Defense.
[3] Colorado Health and Hospital Association. http://www.cha.com/Hospitals/hospitals.shtml, accessed 10/13/03. Wyoming Hospital Association. http://www.wyohospitals.com/find.html, accessed 10/13/03.

There is at least one acute care hospital operating in each county crossed by the proposed route. Those facilities provide emergency medical care and in several cases are the bases for local emergency medical response and transport services. As in the case of fire suppression, response times to highway or construction-related accidents in parts of the proposed route may be lengthy given communication, dispatch, and travel time considerations.

A higher level trauma center capable of treating serious injuries requiring more specialized or intensive care is located in Rock Springs. The most serious injuries may require transport to regional trauma centers in Grand Junction, Colorado and Casper, Wyoming or even to Denver or Salt Lake City. The regional trauma centers all provide emergency medical air transport, usually via helicopter, with airports capable of accommodating fixed-wing aircraft located in Rifle, Meeker, Craig, Hayden, Rawlins, and Rock Springs.

Construction of the pipeline could result in minor, temporary impacts on local facilities and services, including law enforcement, fire and medical services. A concern raised during public scoping was the

potentially lengthy emergency medical response times in the more remote stretches of the proposed pipeline route. To address these concerns, WIC has drafted an on-site ERP which includes the formation of emergency response teams for the project (WIC 2005f). The ERP would be provided to the BLM, Colorado and Wyoming DOT and to the FERC upon completion.

Other construction-related impacts on local services may include increased demand for permits for vehicle load and width limits and local police assistance during construction at road crossings to facilitate traffic flow. WIC would work with the local law enforcement, fire departments, and emergency medical services to coordinate effective emergency response. The degree of impact would vary from community to community depending on the number of non-local workers and accompanying family members that temporarily reside in each community, the duration of their stay, and the size of the community. Although these factors are too indeterminate and variable to accurately predict the magnitude of impact, the effects would be short term and are not expected to be significant.

The limited number of permanent employees associated with the proposed project would result in negligible long-term impacts on public services.

3.9.5 Public Sector Fiscal Resources

Local municipal governments, school districts and some other government-funded entities rely heavily on property and sales tax revenues to fund their ongoing operations. **Table 3.9-7** lists the 2003 total assessed valuation from all sources and estimated gross retail sales of all establishments for the three directly

Table 3.9-7
County Property and Sales Tax Base

	Assessed Valuation 2003	Gross Retail Sales (Estimated)
Carbon, WY	$382,269,728	$344,978,000
Sweetwater, WY	$1,160,741,992	$1,073,949,000
Moffat, CO	$298,876,180	$226,378,000
Rio Blanco, CO	$304,607,460	$4,169,443,000

Note: Retail sales for Wyoming are Fiscal year 2004, those for Colorado are for calendar year 2003.

Sources: Wyoming Department of Administration and Information 2004; Wyoming Taxpayers Association 2004; Colorado Department of Local Affairs, Division of Property Taxation 2004.

affected counties and Carbon County where many non-local workers are expected to reside. Note that the values for Wyoming and Colorado counties are not directly comparable due to differences in property assessment practices, but comparisons between counties within a state reflect differences in the scale of development and natural resource wealth. For instance, assessments on mineral production account for about 63 percent of the total assessed valuation in Sweetwater County and 76 percent of Rio Blanco County's total. Other state-assessed property, including utilities and oil and gas transmission systems, account for 48 percent of the total valuation in Moffat County and between 10 and 13 percent of the total in

Sweetwater and Rio Blanco Counties. Statewide total assessed valuation on gas transmission pipelines in 2003 was $121.7 million in Wyoming and $255.6 million in Colorado.

Gross annual retail sales reflect a locality's population, income, the level of travel and tourism in the region, the presence of special populations such as a college or university, and the economic stimulus provided by special activities such as construction projects and energy and mineral resource development. In both states, all of the counties and many of the communities within the counties levy sales taxes on retail purchases. Based on total annual gross retail sales, Rio Blanco and Moffat Counties have the smallest trade and service sectors of all the counties crossed by the proposed project while Sweetwater County has the largest.

During operation of the pipeline, WIC would pay property/ad valorem taxes to local governments crossed by the proposed pipeline. In Wyoming, those payments would include taxes associated with a mandatory statewide levy to help support public education. Transmission lines are centrally assessed by the state, with the total valuation then allocated among the local counties based on their respective shares of the installed pipelines and facilities. Initially the cost of construction provides a reasonable proxy for the market valuation of gas transmission systems. Over time, the assessment focuses more on the respective facility's contribution to system-wide income and depreciated value, generally resulting in lower assessment. For example, the aggregate assessed valuation of gas transmission systems (141.7 miles of pipeline and corresponding compressors and other equipment) in Colorado and Wyoming in 2003 was just over $47.6 million, with a corresponding original construction cost of $120.1 million. For this analysis, it is assumed that the long-term assessment would decline to 40 percent of the initial construction cost-based assessment. **Table 3.9-8** summarizes the projected assessed valuation and corresponding annual property taxes, by county, directly associated with WIC's proposed pipeline.

Table 3.9-8
Projected Assessed Value and Annual Property Taxes, by County

	Assessed Valuation		Property Tax Mill Levy[3]	Annual Property Tax	
	Initial Construction[1]	Long-term[2]		Initial Construction	Long-term
Sweetwater, WY	$4,642,200	$1,856,880	61.823	$286,995	$114,798
Moffat, CO	$12,445,500	$4,978,200	60.720	$755,691	$302,276
Rio Blanco, CO	$10,678,100	$4,271,240	37.764	$403,248	$161,299
Total	**$27,765,800**	**$11,106,320**		**$1,445,933**	**$578,373**

[1] Initial valuations based on 11.5 percent assessment rate in Wyoming and 29 percent in Colorado.
[2] Assumes assessed valuation at 40 percent of construction cost after the pipeline has been operational for several years and is centrally assessed based on its contribution to annual corporate income.
[3] Average mill levies for real property in unincorporated areas of each county.

Source: ENSR, based on data from WIC; local county assessors; the Colorado Division of Property Taxation 2004; Wyoming Department of Revenue 2004.

Estimated valuation for the pipeline and additional compression would be about $27.8 million. Of that sum, 17 percent would be in Wyoming and 83 percent in Colorado. Total annual property taxes levied on those assessments are projected at about $1.45 million. Over time, the total assessed value is anticipated to

decline to $11.1 million and annual property taxes paid would decline to $0.58 million. The ongoing revenues, given the relatively low demands on public services and facilities would represent a substantial economic benefit associated with the project.

Tax revenues are typically used by local and state governments for infrastructure improvements such as roads, schools, and health facilities, and to meet other needs of the community.

Retail sales, property, income (in Colorado) and other taxes collected from the permanent employees associated with the continuing operations and maintenance would have a negligible effect on state, county, and local tax revenues.

3.9.6 Transportation

The major transportation routes that would be crossed by the proposed pipeline project include U.S. Interstate 80 (I-80), U.S. Highway 40, and Colorado State Highway 64.

Another significant transportation feature in the region is the Union Pacific Railroad's mainline route across southern Wyoming. The railroad and I-80 corridors generally parallel each other across Sweetwater and Carbon Counties.

Construction across roads, highways, and railroads would result in short-term impacts on public travel while construction activities pass through the project area. WIC has developed a draft TTMP to assist in mitigating potential impacts of project-related road use and construction activity (WIC 2005g).

WIC has stated that major paved roads, highways, and railroads would generally be crossed by boring beneath the road or railroad. These crossings would require the approval and appropriate permits from railroad companies, as well as state and local agencies. Boring typically requires temporary work areas on either side of the crossing for excavating bore pits to the depth of the pipeline while the roadway or railroad is allowed to remain open. There would be little or no disruption of traffic at road or railroad crossings that are bored.

Smaller or unpaved roads would typically be open cut where permitted by local authorities or landowners. The open-cut crossing method may require temporary closure of a road and establishment of detours. If no reasonable detour is feasible, at least one lane of a road would be kept open to traffic, except for brief periods when it is essential to close the road to install the pipeline. WIC would avoid closing roads during peak traffic hours.

To maintain safe conditions, WIC would direct its construction contractors to ensure enforcement of local weight restrictions and limitations by their vehicles and to remove any soil left on the road surface by the crossing of construction equipment. When it is necessary for equipment to cross roads, mats or other appropriate measures (e.g., sweeping) would be used to reduce deposition of mud.

Movement of construction equipment, materials, and crew members would result in an additional short-term impact on the transportation network. Much of the proposed project area is readily accessible by state

primary and secondary highways, county roads, and private roads. Impacts on local traffic levels would be temporary given the linear and dispersed nature of the project as construction would move sequentially along the proposed pipeline route. Construction workers would commute to and from the project area from temporary housing in local towns and cities, although this would typically begin before sunrise and end after sunset, times of the day when daily local traffic tends to be light. Consequently, short duration congestion is likely to occur in some locations, affecting residents and other travelers as well.

Minimal traffic is anticipated to be associated with operation and maintenance of the new pipeline as only one additional permanent worker would be required to operate the pipeline and ongoing contract maintenance would not generate substantial traffic on a consistent or long-term basis. Therefore, no impacts on transportation networks would be expected to occur during operation of the proposed pipeline.

3.9.7 Property Values

About 54 percent of the land affected by construction and operation of the proposed project would be on public lands managed by the BLM (46 percent) and the State of Colorado (8 percent). The remainder of the land that would be affected (46 percent) is privately owned. A detailed description of land ownership is presented in section 3.7.

On both public and private lands, WIC would acquire an easement for both the temporary (for construction) and permanent ROWs. The easement would provide WIC the right to construct, operate, and maintain the pipeline, and establish a permanent ROW. In return, WIC would compensate the landowner for use of the land and the temporary loss of crops or forage. Where the proposed pipeline route would cross BLM land, WIC would acquire a ROW grant for construction and operation of the proposed facilities. The ROW grant essentially allows WIC to lease the land from the BLM.

The potential effect that a pipeline easement may have on private property values or property income is an issue that would be negotiated between the parties during the easement acquisition process. The easement acquisition process is designed to compensate a landowner for the right to use the property for pipeline construction and operation. The impact a pipeline may have on the value of a tract of land depends on many factors, including the size of the tract, the values of adjacent properties, the presence of other utilities, the current value of the land, and the current land use. Construction of the proposed pipeline would not change the general use of the land, but would preclude construction of aboveground structures on the permanent ROW and might interfere with other current uses, e.g., irrigation and raising crops, on a short-term or long-term basis, or the loss of non renewable resources or destruction of other improvements such as fences.

Prior to initiating any construction activities on non-federal lands, an easement would be pursued by the pipeline company to convey ROW from the landowner to the pipeline company. The easement negotiations between the company and the landowner also would include compensation for loss of use during construction, loss of nonrenewable or other resources, damage done to property during construction, and allowable uses of the ROW after construction. Because the easement acquisition process is conducted with the landowner, it is possible that tenants or lessees could be adversely impacted, though it is not known whether any instances of such impacts would occur in conjunction with the Piceance Project.

If an easement cannot be negotiated with the landowner and the project has been certificated by the Commission, the company may use the right of eminent domain granted to it under Section 7(h) of the NGA to obtain the ROW and extra work areas identified in the Certificate. Section 7(h) implies that eminent domain is a remedy of last resort, to be used "when any holder of a certificate of public convenience and necessity cannot acquire by contract, or is unable to agree with the owner of property to the compensation to be paid for, the necessary right-of-way..." There are a number of options available, short of eminent domain, to secure the property:

- negotiate to buy the land;
- negotiate to lease the land; or
- negotiate a "restrictive easement" arrangement with the landowner.

The company would still be required to compensate the landowner for the ROW and for any damages incurred during construction. The level of compensation would be determined by a court according to state law. Special permits would be obtained as needed for pipeline ROW through town, state, or federal lands.

WIC is currently working to obtain the necessary easements for the proposed facilities. Through negotiations with landowners, WIC would be able to make minor route adjustments to accommodate landowner needs and requirements as long as those changes would not affect any environmentally sensitive areas, or affect other landowners without their approval. If easements are acquired through the use of eminent domain, it would be more difficult to make adjustments to the route.

3.9.8 Environmental Justice

A description of the population types (i.e., races) residing within the three counties crossed by the proposed pipeline route based on U.S. Census Bureau data from 2000 is presented in **table 3.9-9**. In Colorado, the proposed pipeline route would cross counties that contain a smaller proportion of minorities than are found statewide in Colorado. In Wyoming, demographics for Sweetwater County show a slightly larger proportion of minorities compared to Wyoming's statewide average.

The percent of population with incomes below the poverty level also are summarized in **table 3.9-9**. In Colorado, Rio Blanco County has poverty rates higher than the statewide average, while poverty rates in Moffat County are less than the statewide average. In Wyoming, the poverty rate in Sweetwater County has a smaller percentage of people living in poverty than the statewide average.

WIC's proposed pipeline route effectively bypasses all concentrations or clusters of residential and commercial development, and for the most part is located on public lands or collocated with other utilities or near highway corridors. Furthermore, no residential or commercial displacements are anticipated. Thus, the potential for adverse impacts on minorities or low-income populations, much less disproportionate impacts, is remote.

Table 3.9-9
Race and Poverty

	Race as a Percent of Total Population[1]						Persons Below Poverty Level, percent (1999)
	White	Black or African American	American Indian and Alaska Native	Other Races	Two or More Races	Hispanic or Latino Origin, percent (2000)[2]	
COLORADO	82.8	3.8	1.0	9.6	2.8	17.1	9.3
Rio Blanco	95.0	0.2	0.8	2.3	1.7	4.9	9.6
Moffat	93.6	0.2	0.9	3.5	1.8	9.5	8.3
WYOMING	92.1	0.8	2.3	3.0	1.8	6.4	11.4
Sweetwater	91.6	0.7	1.0	4.3	2.4	9.4	7.8

[1] U.S. Department of Commerce, Bureau of the Census, Census 2000: Demographic Profiles.

[2] People who identify their origin as Hispanic or Latino may be of any race. Thus, the percent Hispanic or Latino should not be added to the race as percentage of population categories.

3.10 Air and Noise Quality

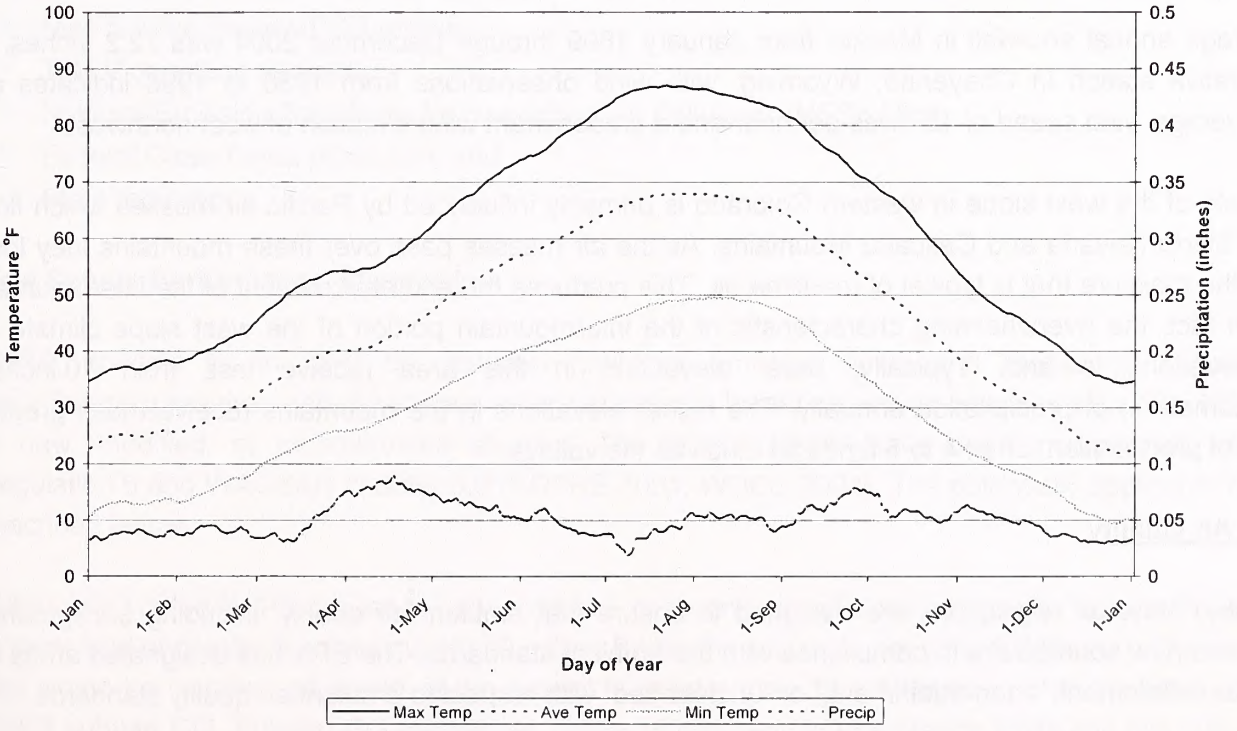
3.10.1 Air Quality

Climate

The regional climate of the proposed project area is predominantly classified as continental with some areas in Wyoming classified as temperate semi-arid. Surface wind direction and precipitation vary in the proposed project area due to significant geographical features. However, the specific characterization of the local weather based on data from Meeker, Colorado indicates an average annual maximum temperature of 60.8 degrees Fahrenheit (°F) and an average annual minimum temperature of 29.9°F with an average annual precipitation of 18.5 inches (**table 3-10.1**).

The plotted data curves in **figure 3.10-1** are smoothed using a 29-day running average. The maximum temperature (Max. Temp.) is the average of all daily maximum temperatures recorded for the day of the year between the years 1971 and 2000. The average temperature (Ave. Temp.) is the average of all daily average temperatures recorded for the day of the year between the years 1971 and 2000. The minimum temperature curve (Min. Temp.) is the average of all daily minimum temperatures recorded for the day of the year between the years 1971 and 2000. Precipitation is the average of all daily total precipitation recorded for the day of the year between the years 1971 and 2000.

Figure 3.10-1. Average Temperature and Precipitation at Meeker, Colorado 30-Year Average 1971-2000



Source: Western Region Climate Center website http://www.wrcc.dri.edu.

Table 3.10-1
Air Quality Emissions Analysis for the CIG Greasewood Compressor Station

Compressor Make & Model	Rated horsepower	Emissions horsepower	NO_x tpy	CO tpy	VOC tpy	SO_x tpy	PM tpy	HAPs tpy
Proposed Compressor								
Solar Centaur 40	2,890[1] 1,650[2]	3,190[3]	87.8	16.2	0.93	0.46	0.89	0.52
Existing Compressors								
(1)Allison 501-KC5		3,304	84.1	12	0.9	0.57	1.1	0.54
(2) Waukesha 5108GL		787	12.9	22.9	8.6	0.016	0.003	1.45
(1) Caterpillar G3516		1,013	14.7	17.6	5.3	0.02	0.003	1.87

[1] ISO horsepower, sea level and 59°F.
[2] Design case based on site elevation and 90°F.
[3] Maximum available horsepower, site elevation and 0°F – provides worst-case emissions estimate.

Assumes 8,760 hours per year of operation for all units

The average annual snowfall in Meeker from January 1899 through December 2004 was 72.2 inches. A representative station in Cheyenne, Wyoming, with wind observations from 1930 to 1996 indicates an annual average wind speed of 13 miles per hour and a predominant wind direction of west-northwest.

The climate of the west slope in western Colorado is primarily influenced by Pacific air masses which flow over the Sierra Nevada and Cascade Mountains. As the air masses pass over these mountains they lose much of the moisture that is typical of maritime air. This produces the arid environment of the intermountain region. In fact, the overwhelming characteristic of the intermountain portion of the west slope climate at lower elevations is arid. Typically, lower elevations in this area receive less than 10 inches (25.5 centimeters) of precipitation annually. The higher elevations in the mountains receive much greater amounts of precipitation, often 4 to 5 times as much as the valleys.

Existing Air Quality

Federal and state air regulations are designed to ensure that ambient air quality, including background, existing, and new sources are in compliance with the ambient standards. The EPA has designated areas of the U.S. as "attainment," "non-attainment," or "unclassified" with respect to ambient air quality standards.

The EPA has established National Ambient Air Quality Standards (NAAQS) for seven pollutants: sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen dioxide (NO_2), ozone, particulate matter (PM_{10} and $PM_{2.5}$), and lead. The NAAQS were set at levels the EPA believed were necessary to protect human health (primary standards) and human welfare (secondary standards). The federal NAAQS for criteria pollutants are the same as the state standards established by the Colorado Department of Public Health and Environment (CDPHE) and Wyoming Department of Environmental Quality (WDEQ), except the WDEQ regulates sulfur oxides (SO_x) instead of SO_2 (CDPHE 2004; WDEQ 2004). All parts of Colorado and Wyoming through which the proposed project would be located are classified as attainment for all criteria pollutants.

Regulatory Requirements for Air Quality

The proposed pipeline project would generate air emissions through both short-term construction activities and long-term operation of the stationary emission units at the compressor stations. Emissions from all phases of construction and operation of the emission units would be subject to applicable state and federal air regulations.

Air emission sources in Colorado and Wyoming are regulated at the federal level by the CAA, as amended, and at the state level by the Colorado Air Quality Control Commission (AQCC) Regulations and the Wyoming Air Quality Standards and Regulations (WAQS&R) (CDPHE 2004; WDEQ 2004). The significant federal regulations established as a result of the CAA and incorporated in the AQCC Regulations and WAQS&R that are potentially applicable to the project include:

- New Source Performance Standards (NSPS);
- New Source Review/PSD review;
- Title V operating permits;
- National Emission Standards for Hazardous Air Pollutants (NESHAPs);
- Federal Class I area protection; and
- State regulations.

New Source Performance Standards

NSPS, codified in 40 CFR 60, establish pollutant emission limits and monitoring, reporting, and recordkeeping requirements for various emission sources based on source type and size. The NSPS apply to new, modified, or reconstructed sources. The federal NSPS have been incorporated into AQCC Regulation 6 and WAQS&R chapter 5.0 (CDPHE 2004; WDEQ 2004). The potentially applicable NSPS are described below.

Subpart GG of the NSPS applies to new, modified, or reconstructed stationary gas turbines with a heat input at peak load of greater than or equal to 10 million British thermal units per hour (MMBtu/hr). The new turbine that would be installed as a part of the project is greater than 10 MMBtu/hr and is, therefore, subject to NSPS subpart GG. Subpart GG establishes oxides of nitrogen (NO_x) emission limits and fuel sulfur content

limits. The proposed gas turbine would meet the requirements of subpart GG by burning only pipeline quality natural gas.

NSPS subpart KKK applies to volatile organic compound (VOC) emissions from equipment leaks at onshore natural gas processing plants. Natural gas processing plants are defined under subpart KKK as any processing site engaged in the extraction of natural gas liquids from field gas, fractionation of mixed natural gas liquids, or both. The proposed Piceance Project compressor does not meet the definition of onshore natural gas processing plants; therefore, subpart KKK does not apply.

NSPS subpart LLL applies to sweetening units and sulfur recovery units at onshore natural gas processing plants. Sweetening units are defined by subpart LLL as process devices that separate the hydrogen sulfide (H_2S) and carbon dioxide (CO_2) contents from the sour natural gas. Sulfur recovery units are defined as process devices that recover elemental sulfur from the H_2S and CO_2 generated by a sweetening unit. No control equipment would be installed for the proposed modification to Piceance Project compressor station to remove CO_2 or H_2S from the gas; therefore, subpart LLL does not apply.

Prevention of Significant Deterioration

Title I of the CAA establishes guidelines for the preconstruction/modification review of large air emission sources. Construction of sources in attainment areas must be reviewed in accordance with the PSD regulations. To be classified as a new major PSD source, the potential emissions from the source must either be greater than 100 tons per year (tpy) for any pollutant regulated by the EPA under the CAA for sources that are among the 28 source categories listed in section 169 of the CAA, or greater than 250 tpy for any pollutant regulated by the EPA under the CAA for sources that are not among the 28 source categories listed in section 169 of the CAA. Best Available Control Technology analyses and detailed dispersion modeling are required if a new source is classified as a major PSD source.

Natural gas compressor stations are not identified in the list of 28 source categories in section 169 of the CAA; therefore, the applicability threshold for PSD review for the proposed compressor station modification is 250 tpy.

Title V Operating Permits

Title V of the CAA requires states to establish an air operating permit program. The requirements of Title V are outlined in 40 CFR 70 and the permits required by these regulations are often referred to as Part 70 permits. Colorado and Wyoming have incorporated this program in Regulation 3 of the AQCC and chapter 6.0 of the WAQS&R.

If a facility's potential to emit exceeds the criteria pollutant or hazardous air pollutant (HAP) thresholds, the facility is considered a major source. The major source threshold level for an air emission source is 100 tpy for criteria pollutants.

The potential emissions for NO_x and CO at the CIG Greasewood Compressor Station exceed the Title V threshold of 100 tpy. The Greasewood Compressor Station is a major source of air emissions and has a

Part 70 permit. WIC would apply for a permit modification from the CDPHE to include the additional proposed compressor.

The major source HAP thresholds for a source are 10 tpy of any single HAP or 25 tpy of all HAPs in aggregate. Potential HAP emissions from the CIG Greasewood Compressor Station following the proposed modifications are less than 3 tpy. Therefore, the station would not be a major source of HAPs.

National Emission Standards for Hazardous Air Pollutants

The NESHAPs, codified in 40 CFR Parts 61 and 63, regulate HAP emissions. The proposed modification of the CIG Greasewood Compressor Station is not classified as one of the source categories regulated by Part 61. Therefore, the requirements of Part 61 are not applicable to the CIG Greasewood Compressor Station. Part 63, also known as the Maximum Achievable Control Technology (MACT) standards, regulates HAP emissions from major sources of HAP emissions and specific source categories that emit HAPs. Part 63 defines a major source of HAPs as any source that has the potential to emit 10 tpy of any single HAP or 25 tpy of HAPs in aggregate. A MACT standard exists for natural gas transmission and storage facilities (subpart HHH) and standards have been proposed for reciprocating engines (subpart YYYY), combustion turbines (subpart ZZZZ), and boilers (subpart DDDDD). All of these MACT standards apply to major sources of HAPs. The potential HAP emissions (in aggregate) from each of the existing and modified (as proposed) compressor stations are less than 3 tpy. Therefore, the CIG Greasewood Compressor Station and proposed modification is not a major source of HAPs and would not be subject to NESHAP.

Federal Class I Area Protection

As determined previously, the proposed modifications to the CIG Greasewood Compressor Station would not be subject to the PSD regulations. Therefore, the federal Class I area protection provisions would not apply to this project.

State Regulations

Colorado air emissions are regulated by the AQCC per AQCC-1001. Regulation 1 of AQCC-1001 addresses emissions of particulates, smoke, CO, and SO_x. Specific requirements in this regulation can potentially apply to the operation and construction of the proposed WIC compressor stations. The proposed compressor stations would require construction permits under Regulation 3 of the Colorado AQCC. Therefore, Piceance Project would be required to submit a fugitive particulate dust control plan as part of the construction permit application. Compliance with the emission limits set by the Colorado regulations for operational emissions would be demonstrated during the construction permitting process.

Wyoming air emissions are regulated by the WAQS&R. Chapter 2.0 of the WAQS&R establishes ambient air quality standards for H_2S, suspended sulfates, fluorides, and odor. There would be no quantifiable sulfates, fluoride, or odor emitted during normal operation. Emissions of H_2S would be extremely small and would only occur during unpredictable blowdown of pipeline sections for maintenance. No additional compression facilities are proposed at the Wamsutter compressor station for the Piceance Project.

Chapter 3.0 of the WAQS&R mandates specific emissions requirements that can potentially apply to the operation of pipeline facilities. Such requirements address opacity emissions, PM_{10} and $PM_{2.5}$, NO_x, SO_x, CO, VOCs, and H_2S. The specific requirements and the limitations of these regulations would be addressed when obtaining construction permits.

CIG Greasewood Compressor Station

WIC would install additional compression at the existing CIG Greasewood Compressor Station (MP 141.7). The facility currently consists of two separate natural gas compressor facilities: 1) the Greasewood Compressor, and 2) the Parachute Compressor. The Parachute Compressor facility consists of three reciprocating compressor units located within a single insulated metal building. The Greasewood Compressor currently consists of a separate building that houses a gas turbine which drives a centrifugal compressor. The Greasewood Compressor addition would consist of another single turbine-driven centrifugal compressor unit within the existing CIG Greasewood Compressor Station. The turbine driven compressor addition would have an ISO rating of 2,890 horsepower. New auxiliary equipment associated with the proposed turbine-driven compressor unit would include:

- outdoor lube oil cooler;
- outdoor gas after cooler;
- turbine exhaust/stack muffler located outside of the building for the new unit;
- a turbine air intake filter system consisting of an in-duct dissipative-type silencer; and
- aboveground gas piping and piping system components.

The new compressor would be equipped with dry, low NO_x combusters in order to limit NO_x emissions. The pipeline entering and exiting the compressor facilities would be below grade as practicable, but would be aboveground prior to entering and exiting the buildings. The facility would not include any belowground vaults, basements, or crawl spaces. The station location would be fenced and contain external lighting.

TransColorado Northern Expansion Project

TransColorado would install additional compression to support the Piceance Project at their TransColorado Greasewood Compressor Station. This project is being reviewed by the FERC in a separate filing and is not discussed further here.

Construction Impacts

Construction of the proposed pipeline and additional compression at the CIG Greasewood Compressor Station would result in intermittent and short-term fugitive emissions. These emissions would include dust from soil disruption and combustion emissions from the construction equipment. Emissions from construction are not expected to cause or significantly contribute to a violation of an applicable ambient air quality standard because the construction equipment would be operated on an as-needed basis during daylight hours only. Additionally, WIC would implement a TTMP to prevent fugitive dust from becoming a public nuisance or compromising safety via the use of this plan. WIC also would implement dust control

requirements during certain construction activities such as blasting, transporting soil or rock, trenching, and use of access roads. WIC would implement several dust control measures as stated in the POD, including the application of water and the potential use of tackifiers. The BLM would require approval for application of any dust extinguishers other than water to the ROW or access roads.

Air pollutants from construction equipment internal combustion engines would be limited to the immediate vicinity of the project area and would be short-term, resulting in an insignificant impact on air quality.

Operational Impacts

Air quality would be affected by operation of the modified compressor station as proposed by WIC in Rio Blanco County, Colorado.

During operation, the existing compressor stations would emit varying quantities of regulated air pollutants, including NO_x, CO, PM_{10} and $PM_{2.5}$, VOCs, and SO_2. Of these, the pollutants emitted in greatest quantities would be CO and NO_x, the primary component of which is NO_2. Emissions of hydrocarbons, a type of VOC, would be below major source quantity thresholds established by the EPA. Emissions of SO_2 would be proportional to the amount of sulfur in the fuel. Because the fuel would be natural gas containing very little sulfur, the amount of SO_2 emitted would be low. Additionally, HAPS would not be emitted in significant amounts, and would not result in Title V applicability. Because the compressor station potential emissions would be less than the PSD major source thresholds, dispersion modeling would not be required under the federal construction permitting program.

Table 3.10-1 provides the anticipated proposed emissions of NO_x, CO, VOC, PM_{10}, $PM_{2.5}$, SO_2, and HAPs from the modified compressor station. Our site-specific analysis of operational impacts on air quality is presented below.

Emissions from a blowdown of the pipeline or compressor station could occur on a very rare basis, in emergency or maintenance operations. Such a blowdown would generate emissions of VOCs, consisting primarily of propane. Due to the infrequent occurrence, we conclude that there would be no significant air quality impacts from blowdowns.

If WIC complies with Colorado and Wyoming regulations concerning the mitigation of fugitive dust emissions, we believe that the proposed project would incorporate sufficient measures to ensure adequate levels of air quality during construction at the compressor stations. Operational impacts would be mitigated by the state permitting process, which may include mitigative measures. The proposed compressor station modification is not expected to have significant adverse impacts on local or regional air quality.

3.10.2 Noise

Construction, modification, and operation of the proposed project facilities would impact the local noise environment. The ambient sound level of a region is defined by the total noise generated within the specific environment, and is usually comprised of sounds emanating from natural and artificial sources. At any location, both the magnitude and frequency of environmental noise may vary considerably over the course

of a day and throughout the week. This variation is caused in part by changing weather conditions and the effect of seasonal vegetation cover.

Two measurements commonly used by federal agencies to relate the time-varying quality of environmental noise to its known effects on people are the equivalent sound level (L_{eq}) and the day-night sound level (L_{dn}). The L_{eq} is an A-weighted sound level containing the same sound energy as the instantaneous sound levels measured over a specific time period. Noise levels are perceived differently, depending on length of exposure and time of day. The L_{dn} takes into account the duration and time the noise is encountered. Late night and early morning (10:00 p.m. to 7:00 a.m.) noise exposures are penalized +10 decibels, to account for people's greater sensitivity to sound during the nighttime hours.

In 1974, the EPA published its Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (EPA 1974). This document provides information for state and local governments to use in developing their own ambient noise standards. The EPA has indicated that an L_{dn} of 55 dBA protects the public from indoor and outdoor activity interference. We have adopted this criterion and have used it to evaluate the potential noise impact from operation of the compressor facilities.

The state of Colorado regulates noise pollution at the state level under Colorado Statute Title 25, Article 12 (CS 25-12). An exemption exists under the state law for any facility that is permitted under a federal action.

The State of Wyoming and the counties of Rio Blanco, Moffat, and Sweetwater do not have any quantitative noise regulations.

Existing Noise Levels

The existing CIG Greasewood Compressor Station is located in an area (Greasewood Hub) containing multiple compression facilities. The Greasewood Hub area is rural with few other noise sources in the immediate vicinity. Existing ambient noise measurements were taken at the nearest noise-sensitive area (NSA) and are summarized in **table 3.10-2**.

Table 3.10-2
Existing Noise Levels[1]

Location	Distance and Direction[2]	Daytime Equivalent Sound Level ($L_{eq}(d)$)	Nighttime Equivalent Sound Level ($L_{eq}(n)$)	24-Hour Equivalent Sound Level (L_{eq})	Day–Night Sound Level (L_{dn})[3]
CIG Greasewood Compressor Station (MP 141.7)					
NSA #1	1,700 feet NW	45.6	45.6	52.0	52.0

[1] All noise levels are in dBA.
[2] All distances are based on the NSAs location relative to closest boundary.
[3] L_{dn} noise levels are calculated assuming that the measured levels are representative of the day and night sound levels in the area.

Construction Noise Impacts

The modification of the CIG Greasewood Compressor Station would cause temporary increases in the ambient sound environment in the immediate vicinity of the station. Construction of the pipeline would last for approximately 6 months and modification of the compressor station would last for about 3 months. During construction, WIC would be required to comply with any local construction noise requirements. In addition, WIC has agreed to limit construction activities primarily to daylight hours. Nighttime noise levels would normally be unaffected by construction activities, as most construction is typically restricted to daylight hours. With construction restricted to daytime hours, and given the temporal and axial nature of construction, we do not believe that adjacent landowners would be adversely affected.

Operational Noise Impacts

During operation of the pipeline the noise impact associated with the proposed compressor station modification would be limited to the vicinity of the facility. Primary operational noise sources at the proposed compressor station modification would be the turbine intakes, turbine exhausts, oil coolers, gas aftercooler, and turbine-compressor package. The noise from the auxiliary power units is not included in the noise assessment due to the temporary and rare operation of these units.

The compressor station modifications would be constructed in a manner that would minimize potential impacts from noise. WIC states that the new compressors would be installed within a acoustically designed building with acoustically rated doors, acoustical insulation, silenced ventilation systems, muffler systems on exhaust systems of new turbines, intake silencer, and may include covering of exposed metal pipe supports and aboveground piping.

WIC also proposes to install blowdowns at the CIG Greasewood Compressor Station to evacuate natural gas from the facility in the event of an emergency, accident or maintenance. Noise from a typical unsilenced blowdown event can be upwards of 100 dBA and WIC has stated that each blowdown stack would be equipped with an appropriately designed silencer to reduce this noise. While we do not have good data on the resultant noise from a blowdown event, due to the rarity and short duration of each blowdown but WIC estimates 5 blowdowns over a 12-year period. We do not expect the resultant noise to be a significant annoyance or impact to local residents.

WIC performed a noise assessment for the proposed compressor station modification. The acoustical analysis estimated noise reduction over distance via the SPM 9613 noise modeling program. **Table 3.10-3** shows the estimated noise resulting from the operation of the compressor station modification at the nearest NSA (presumed to be an office).

Table 3.10-3
Estimated Noise Levels from the CIG Greasewood Compressor Station

NSA	Distance/ Direction	Current Ambient Noise, L_{dn} (dBA)[1]	Est'd L_{dn} of Existing Station (dBA)	Est'd L_{dn} of Existing Station + New Unit (dBA)	Noise Increase at NSA (dBA)
CIG Greasewood Compressor Station (MP 141.7)					
NSA #1	1,700 feet NW	64.6	52.0	53.0	1.0

[1] dBA: decibels of the A-weighted scale.

The estimated noise increase of 1.0 dBA at the NSA as a result of additional compression installed at the CIG Greasewood Compressor Station would be difficult to detect from current noise levels at the site. The closest residence is approximately 4 miles from the CIG Greasewood Compressor Station. Noise from the CIG Greasewood Compressor Stations is estimated to comply with our 55 dBA L_{dn} noise limit and should not have an adverse noise increase at any NSA. To ensure that the noise from the CIG Greasewood Compressor Station modification does not exceed 55 dBA at the nearest NSAs, **we recommend that WIC file a noise survey with the Secretary no later than 60 days after placing the authorized unit(s) at the CIG Greasewood Compressor Station in service. If the noise attributable to the operation of the compressor station at full load exceeds an L_{dn} of 55 dBA at any nearby noise-sensitive area, WIC shall install additional noise controls to meet that level within 1 year of the in-service date. WIC shall confirm compliance with the L_{dn} of 55 dBA requirement by filing a second noise survey with the Secretary no later than 60 days after WIC installs the additional noise controls.**

If WIC verifies that noise impacts have been mitigated, as indicated by the recommendation, we believe that project-operation noise levels at the nearest NSAs would not be significant.

3.11 Reliability and Safety

The transportation of natural gas by pipeline involves some risk to the public in the event of an accident and subsequent release of gas. The greatest hazard is a fire or explosion following a major pipeline rupture.

Methane, the primary component of natural gas, is colorless, odorless, and tasteless. It is not toxic, but is classified as a simple asphyxiate, possessing a slight inhalation hazard. If breathed in high concentration, oxygen deficiency can result in serious injury or death.

Methane has an ignition temperature of 1,000°F and is flammable at concentrations between 5.0 percent and 15.0 percent in air. Unconfined mixtures of methane in air are not explosive. However, a flammable concentration within an enclosed space in the presence of an ignition source can explode. It is buoyant at atmospheric temperatures and disperses rapidly in air.

3.11.1 Safety Standards

The DOT is mandated to provide pipeline safety under Title 49, U.S.C. Chapter 601. The Research and Special Programs Administration's (RSPA), Office of Pipeline Safety (OPS), administers the national regulatory program to ensure the safe transportation of natural gas and other hazardous materials by pipeline. It develops safety regulations and other approaches to risk management that ensure safety in the design, construction, testing, operation, maintenance, and emergency response of pipeline facilities. Many of the regulations are written as performance standards which set the level of safety to be attained and allow the pipeline operator to use various technologies to achieve safety. RSPA ensures that people and the environment are protected from the risk of pipeline incidents. This work is shared with state agency partners and others at the federal, state, and local level. Section 5(a) of the Natural Gas Pipeline Safety Act provides for a state agency to assume all aspects of the safety program for intrastate facilities by adopting and enforcing the federal standards, while Section 5(b) permits a state agency that does not qualify under Section 5(a) to perform certain inspection and monitoring functions. A state also may act as DOT's agent to inspect interstate facilities within its boundaries; however, the DOT is responsible for enforcement action. The majority of the states have either 5(a) certifications or 5(b) agreements, while nine states act as interstate agents.

The DOT pipeline standards are published in Parts 190-199 of Title 49 of the CFR. Part 192 of 49 CFR specifically addresses natural gas pipeline safety issues.

Under a Memorandum of Understanding on Natural Gas Transportation Facilities (Memorandum) dated January 15, 1993, between the DOT and the FERC, the DOT has the exclusive authority to promulgate federal safety standards used in the transportation of natural gas. Section 157.14(a)(9)(vi) of the FERC's regulations require that an applicant certify that it will design, install, inspect, test, construct, operate, replace, and maintain the facility for which a certificate is requested in accordance with federal safety standards and plans for maintenance and inspection, or shall certify that it has been granted a waiver of the requirements of the safety standards by the DOT in accordance with section 3(e) of the Natural Gas Pipeline Safety Act. The FERC accepts this certification and does not impose additional safety standards other than the DOT standards. If the Commission becomes aware of an existing or potential safety problem,

there is a provision in the Memorandum to promptly alert DOT. The Memorandum also provides for referring complaints and inquiries made by state and local governments and the general public involving safety matters related to pipeline under the Commission's jurisdiction.

The FERC also participates as a member of the DOT's Technical Pipeline Safety Standards Committee which determines if proposed safety regulations are reasonable, feasible, and practicable.

The pipeline and aboveground facilities associated with the Piceance Project must be designed, constructed, operated, and maintained in accordance with the DOT Minimum Federal Safety Standards in 49 CFR Part 192. The regulations are intended to ensure adequate protection for the public and to prevent natural gas facility accidents and failures. Part 192 specifies material selection and qualification, minimum design requirements, and protection from internal, external, and atmospheric corrosion.

Part 192 also defines area classifications, based on population density in the vicinity of the pipeline, and specifies more rigorous safety requirements for populated areas. The class location unit is an area that extends 220 yards on either side of the centerline of any continuous 1 mile length of pipeline. The four area classifications are defined as follows:

Class 1 Location with 10 or fewer buildings intended for human occupancy.

Class 2 Location with more than 10 but less than 46 buildings intended for human occupancy.

Class 3 Location with 46 or more buildings intended for human occupancy or where the pipeline lies within 100 yards of any building, or small well-defined outside area occupied by 20 or more people on at least 5 days a week for 10 weeks in any 12-month period.

Class 4 Location where buildings with four or more stories aboveground are prevalent.

Class locations representing more populated areas require higher safety factors in pipeline design, testing, and operation. Pipelines constructed on land in Class 1 locations must be installed with a minimum depth of cover of 30 inches in normal soil and 18 inches in consolidated rock. Class 2, 3, and 4 locations, as well as drainage ditches of public roads and railroad crossings, require a minimum cover of 36 inches in normal soil and 24 inches in consolidated rock.

Class locations also specify the maximum distance to a sectionalizing block valve (e.g., 10.0 miles in Class 1, 7.5 miles in Class 2, 4.0 miles in Class 3, and 2.5 miles in Class 4). Pipe wall thickness and pipeline design pressures, hydrostatic test pressures, maximum allowable operating pressure, inspection and testing of welds, and frequency of pipeline patrols and leak surveys also must conform to higher standards in more populated areas. Preliminary class locations for the Piceance Project have been developed based on the relationship of the pipeline centerline to other nearby structures and manmade features. The entire route (141.7 miles) is classified as Class 1.

If a subsequent increase in population density adjacent to the ROW indicates a change in class location for the pipeline, WIC would reduce the MAOP or replace the segment with pipe of sufficient grade and wall thickness, if required to comply with the DOT code of regulations for the new class location.

In 2002, congress passed an act to strengthen the Nation's pipeline safety laws. The Pipeline Safety Improvement Act of 2002 (HR 3609) was passed by Congress on November 15, 2002, and signed into law by the President in December, 2002. No later than December 17, 2004, gas transmission operators must develop and follow a written integrity management program that contains all the elements described in §192.911 and addresses the risks on each covered transmission pipeline segment. Specifically, the law establishes an integrity management program which applies to all high consequence areas (HCAs). The DOT (68 FR 69778, 69 FR 18228, and 69 FR 29903) defines HCAs as they relate to the different class zones, potential impact circles, or areas containing an identified site as defined in §192.903 of the DOT regulations.

OPS published a series of rules from August 6, 2002 to May 26, 2004 (69 FR 29903), that defines HCAs where a gas pipeline accident could do considerable harm to people and their property and requires an integrity management program to minimize the potential for an accident. This definition satisfies, in part, the Congressional mandate in 49 U.S.C. 60109 for OPS to prescribe standards that establish criteria for identifying each gas pipeline facility in a high density population area.

The HCAs may be defined in one of two ways. In the first method an HCA includes

- current class 3 and 4 locations;
- any area in Class 1 or 2 where the potential impact radius[17] is greater than 660 feet and there are 20 or more buildings intended for human occupancy within the potential impact circle[18]; or
- any area in Class 1 or 2 where the potential impact circle includes an identified site.[19]

In the second method an HCA includes any area within a potential impact circle which contains

- 20 or more buildings intended for human occupancy; or
- an identified site.

Once a pipeline operator has determined the HCAs on its pipeline, it must apply the elements of its integrity management program to those segments of the pipeline within HCAs. The DOT regulations specify the requirements for the integrity management plan at § 192.911. HCAs for the Piceance Project have been determined based on the relationship of the pipeline centerline to other nearby structures and identified sites. WIC has identified one HCA along the proposed route, a parking lot at the LUVS Truck Stop near the Wamsutter Compressor Station in Wyoming. Upon obtaining the necessary permits for its project, finalizing

17 The potential impact radius is calculated as the product of 0.69 and the square root of the MAOP of the pipeline in psi multiplied by the pipeline diameter in inches.

18 The potential impact circle is a circle of radius equal to the potential impact radius.

19 An identified site is an outside area or open structure that is occupied by 20 or more persons on at least 50 days in any 12-month period; a building that is occupied by 20 or more persons on at least 5 days a week for any 10 weeks in any 12-month period; or a facility that is occupied by persons who are confined, are of impaired mobility, or would be difficult to evacuate.

its route, and prior to construction, WIC would determine if its proposed pipeline could affect this, or other potential locations. If appropriate, locations would be incorporated into an Integrity Management Plan developed specifically for the Piceance Project as required by the DOT to ensure pipeline safety.

The pipeline integrity management rule for HCAs requires inspection of the entire pipeline in HCAs every 7 years.

Part 192 prescribes the minimum standards for operating and maintaining pipeline facilities, including the requirement to establish a written plan governing these activities. Under section 192.615, each pipeline operator also must establish an emergency plan that includes procedures to minimize the hazards in a natural gas pipeline emergency. Key elements of the plan include procedures for:

- receiving, identifying, and classifying emergency events, gas leakage, fires, explosions, and natural disasters;
- establishing and maintaining communications with local fire, police, and public officials, and coordinating emergency response;
- emergency shutdown of system and safe restoration of service;
- making personnel, equipment, tools, and materials available at the scene of an emergency; and
- protecting people first and then property, and making them safe from actual or potential hazards.

Part 192 requires that each operator must establish and maintain liaison with appropriate fire, police, and public officials to learn the resources and responsibilities of each organization that may respond to a natural gas pipeline emergency, and to coordinate mutual assistance. The operator also must establish a continuing education program to enable customers, the public, government officials, and those engaged in excavation activities to recognize a gas pipeline emergency and report it to appropriate public officials. WIC would provide the appropriate training to local emergency service personnel before the pipeline is placed in service. No additional specialized local fire protection equipment would be required to handle pipeline emergencies.

WIC intends to control and monitor the pipeline using a SCADA system. The SCADA system would allow WIC to monitor volumes, pressures, and temperatures as well as the operating status of its pipeline facilities. The SCADA system would allow WIC to quickly identify and react to equipment malfunctions. The SCADA system also would provide WIC with the capability to remotely start or stop certain compressors, thereby changing flow volumes to meet changes in customer demand for natural gas.

3.11.2 Pipeline Accident Data

Since February 9, 1970, 49 CFR Part 191 has required all operators of transmission and gathering systems to notify the DOT of any reportable incident and to submit a report on form F7100.2 within 20 days. Reportable incidents are defined as any leaks that:

- caused a death or personal injury requiring hospitalization;
- required taking any segment of transmission line out of service;
- resulted in gas ignition;
- caused estimated damage to the property of the operator, or others, or both, of a total of $5,000 or more;
- required immediate repair on a transmission line;
- occurred while testing with gas or another medium; or
- in the judgment of the operator was significant, even though it did not meet the above criteria.

The DOT changed reporting requirements after June 1984 to reduce the amount of data collected. Since that date, operators must only report incidents that involve property damage of more than $50,000, injury, death, release of gas, or that are otherwise considered significant by the operator. **Table 3.11-1** presents a summary of incident data for the 1970 to 1984 period, as well as more recent incident data for 1986 through 2003, recognizing the difference in reporting requirements. The 14.5-year period from 1970 through June 1984, which provides a larger universe of data and more basic report information than subsequent years, has been subject to detailed analysis, as discussed in the following sections.[20]

Table 3.11-1
Natural Gas Service Incidents by Cause

Cause	Incidents per 1,000 miles of Pipeline (percentage)	
	1970-1984	1986-2003
Outside force	0.70 (53.8)	0.10 (38.4)
Corrosion	0.22 (16.9)	0.06 (23.1)
Construction or material defect	0.27 (20.8)	0.04 (15.4)
Other	0.11 (8.5)	0.06 (23.1)
Total	**1.30**	**0.26**

[20] Jones, D. J., G. S. Kramer, D. N. Gideon, and R. J. Eiber. 1986. "An Analysis of Reportable Incidents for Natural Gas Transportation and Gathering Lines 1970 Through June 1984." NG-18 Report No. 158, Pipeline Research Committee of the American Gas Association.

During the 14.5-year period, 5,862 service incidents were reported over the more than 300,000 total miles of natural gas transmission and gathering systems nationwide. Service incidents, defined as failures that occur during pipeline operation, have remained fairly constant over this period with no clear upward or downward trend in annual totals. In addition, 2,013 test failures were reported. Correction of test failures removed defects from the pipeline before operation.

Additional insight into the nature of service incidents may be found by examining the primary factors that caused the failures. **Table 3.11-1** provides a percentage distribution of the causal factors as well as the annual frequency of each factor per 1,000 miles of pipeline in service.

The dominant incident cause is outside forces, constituting 53.8 percent of all service incidents. Outside forces incidents result from the encroachment of mechanical equipment such as bulldozers and backhoes; earth movements due to soil settlement, washouts, or geologic hazards; weather effects such as winds, storms, and thermal strains; and willful damage. **Table 3.11-2** shows that human error in equipment usage was responsible for approximately 75 percent of outside forces incidents. Since April 1982, operators have been required to participate in "One Call" public utility programs in populated areas to minimize unauthorized excavation activities in the vicinity of pipelines. The "One Call" program is a service used by public utilities and some private sector companies (e.g., oil pipelines and cable television) to provide preconstruction information to contractors or other maintenance workers on the underground location of pipes, cables, and culverts. The 1986 through 2003 data show that the portion of incidents caused by outside forces has decreased to 38.4 percent.

Table 3.11-2
Outside Forces Incidents by Cause (1970-1984)

Cause	Percent
Equipment operated by outside party	67.1
Equipment operated by or for operator	7.3
Earth movement	13.3
Weather	10.8
Other	1.5

The pipelines included in the data set in **table 3.11-1** vary widely in terms of age, pipe diameter, and level of corrosion control. Each variable influences the incident frequency that may be expected for a specific segment of pipeline.

The frequency of service incidents is strongly dependent on pipeline age. While pipelines installed since 1950 exhibit a fairly constant level of service incident frequency, pipelines installed before that time have a significantly higher rate, partially due to corrosion. Older pipelines have a higher frequency of corrosion incidents, since corrosion is a time-dependent process. Further, new pipe generally uses more advanced coatings and cathodic protection to reduce corrosion potential.

Older pipelines have a higher frequency of outside forces incidents partly because their location may be less well known and less well marked than newer lines. In addition, the older pipelines contain a disproportionate number of smaller diameter pipelines, which have a greater rate of outside forces incidents. Small diameter pipelines are more easily crushed or broken by mechanical equipment or earth movements.

Table 3.11-3 clearly demonstrates the effectiveness of corrosion control in reducing the incidence of failures caused by external corrosion. The use of both an external protective coating and a cathodic protection system, required on all pipelines installed after July 1971, significantly reduces the rate of failure compared to unprotected or partially protected pipe. The data shows that bare, cathodically protected pipe actually has a higher corrosion rate than unprotected pipe. This anomaly reflects the retrofitting of cathodic protection to actively corroding spots on pipes.

Table 3.11-3
External Corrosion by Level of Control (1970-1984)

Corrosion Control	Incidents per 1,000 miles per Year
None-bare pipe	0.42
Cathodic protection only	0.97
Coated only	0.40
Coated and cathodic protection	0.11

3.11.3 Impact on Public Safety

The service incident data summarized in **table 3.11-4** include pipeline failures of all magnitudes with widely varying consequences. Approximately two-thirds of the incidents were classified as leaks, and the remaining third classified as ruptures, implying a more serious failure.

Table 3.11-4 presents the average annual fatalities that occurred on natural gas transmission and gathering lines from 1970 to 2003. Fatalities between 1970 and June 1984 have been separated into employees and nonemployees, to better identify a fatality rate experienced by the general public. Of the total 5.0 nationwide average, fatalities among the public averaged 2.6 per year over this period. The simplified reporting requirements in effect after June 1984 do not differentiate between employees and nonemployees. However, the data show that the total annual average for the period 1984 through 2003 decreased to 3.8 fatalities per year. Subtracting two major offshore incidents in 1989, which do not reflect the risk to the onshore public, yields a total annual rate of 2.9 fatalities per year for this period.

The nationwide totals of accidental fatalities from various manmade and natural hazards are listed in **table 3.11-5** in order to provide a relative measure of the industry-wide safety of natural gas pipelines. Direct comparisons between accident categories should be made cautiously, however, because individual exposures to hazards are not uniform among all categories. Nevertheless, the average 2.6 public fatalities per year is relatively small considering the more than 300,000 miles of transmission and gathering lines in service nationwide. Furthermore, the fatality rate is approximately two orders of magnitude (100 times) lower than the fatalities from natural hazards such as lightning, tornados, floods, earthquakes, etc.

The available data show that natural gas pipelines continue to be a safe, reliable means of energy transportation. Based on approximately 302,000 miles in service, the rate of public fatalities for the nationwide mix of transmission and gathering lines in service is 0.01 per year per 1,000 miles of pipeline. Using this rate, the Piceance Project might result in a public fatality every 706 plus years. This would represent a slight increase in risk to the nearby public.

Table 3.11-4
Annual Average Fatalities - Natural Gas Transmission and Gathering Systems[1,2]

Year	Employees	Nonemployees	Total
1970-June 1984	2.4	2.6	5.0
1984-2003[3]	-	-	3.8
1984-2003[3]	-	-	2.9[4]

1 1970 through June 1984 - American Gas Association 1986.
2 DOT Hazardous Materials Information System.
3 Employee/nonemployee breakdown not available after June 1984.
4 Without 18 offshore fatalities occurring in 1989 -- 11 fatalities resulted from a fishing vessel striking an offshore pipeline and 7 fatalities resulted from explosion on an offshore production platform.

Table 3.11-5
Nationwide Accidental Deaths[1]

Type of Accident	Fatalities
All accidents	90,523
Motor vehicles	43,649
Falls	14,985
Drowning	3,488
Poisoning	9,510
Fires and burns	3,791
Suffocation by ingested object	3,206
Tornado, flood, earthquake, etc. (1984 93 average)	181
All liquid and gas pipelines (1978 87 average)[2]	27
Gas transmission and gathering lines Nonemployees only (1970 84 average)[3]	2.6

1 All data, unless otherwise noted, reflects 1996 statistics from the U.S. Department of Commerce, Bureau of the Census, "Statistical Abstract of the United States 118th Edition."
2 DOT, "Annual Report on Pipeline Safety - Calendar Year 1987."
3 American Gas Association 1986.

3.12 Cumulative Impacts

NEPA requires federal agencies to consider the cumulative impacts of proposals under their review. Cumulative impacts are defined in the CEQ regulations 40 CFR 1508.7 as "...the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency... or person undertakes such other actions." These actions include current and projected area development (e.g., oil and gas); management activities and authorizations on public lands (e.g., range conversion and forestry programs); land use trends; and applicable industrial/infrastructure components (e.g., utility corridors). Although the individual impacts of each separate project might not be significant, the additive effects of multiple projects could be.

Existing projects were determined from review of WIC photo-alignment sheets, Wyoming oil and gas facility maps (DeBruin 2002), field reconnaissance, and WIC's FERC application. The proposed and reasonably foreseeable projects were based on ROW and well field development applications submitted to the BLM and FERC application information (Entrega Project, EnCana Meeker Pipeline and Gas Plant Project [EnCana], North Expansion Project). Construction time frames for individual projects were compiled to estimate peak workforce numbers at various locations; however, the actual construction schedules for these projects would depend on factors such as economic conditions, the availability of financing, and the issuance of permits.

Projects and activities included in this analysis are generally those located within the same counties directly affected by construction of the Piceance Project. Most effects of more distant projects are not assessed because their impact would generally be localized and not contribute significantly to cumulative impact in the proposed project area. However, the air quality study area consists of the regional air sheds.

Figure 3.12-1 provides a simplified representation of the existing and proposed gas processing facilities and interconnecting pipelines near the existing Greasewood Hub and the proposed Entrega Meeker Hub Compressor Station. **Table 3.12-1** provides additional details about the facilities illustrated in **figure 3.12-1**. **Figure 3.12-2** is a schematic drawing illustrating the number of gas pipelines included in the existing utility corridor where the Piceance Project would be located, as well as sensitive resources encountered along the entire route. The majority of the pipelines in this utility corridor were constructed in the last 30 years, and the revegetation of the ROW has varied with local climate and soil type. From Wamsutter and south to the Piceance Basin, existing pipeline ROWs have only partially recovered former shrub cover and height. We assumed that an average of 50 feet of ROW remains partially revegetated for each pipeline in the corridor.

Compressor stations are often located at major interconnection points within the interstate gas pipeline system. Compression would be added at the existing CIG compressor station at the Greasewood Hub, and at a nearby site by TransColorado. The Piceance Project would pass by the proposed Entrega Project compressor station at Bighole (Piceance Project MP 62). The Piceance Project would terminate at an existing compressor station at Wamsutter, but no existing compression would be required at that location.

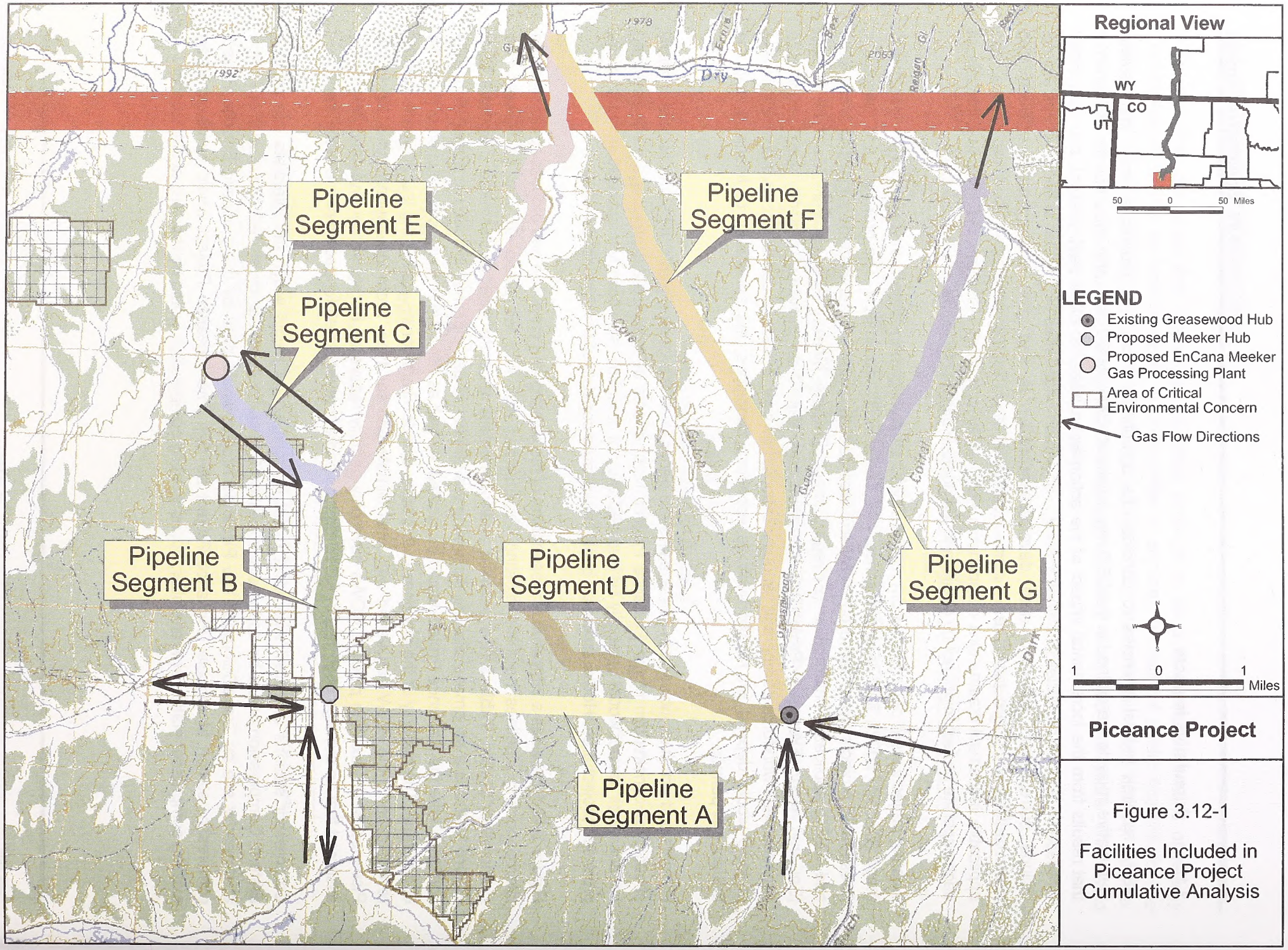


Figure 3.12-1

Facilities Included in Piceance Project Cumulative Analysis

Table 3.12-1
Natural Gas Facilities Included in the Piceance Basin Cumulative Analysis Located Near the Proposed Meeker Hub

Facilities	Existing	Proposed
ABOVEGROUND FACILITIES		
Greasewood Hub	Compressor Stations (CIG, Kinder Morgan, Questar) Pipeline interconnections, metering stations, pig launchers and receivers	TransColorado North Expansion Project
Meeker Hub	EnCana Compressor Station Pipeline interconnections, metering stations	Entrega Compressor Station Pipeline interconnections, metering stations
EnCana Meeker Gas Plant		Natural gas liquids separation from natural gas; natural gas dehydration; carbon dioxide reduction; gas compression (electrical).
PIPELINES		
Pipeline Segment A (Meeker Hub to Greasewood)	Questar 14-inch-diameter natural gas CIG 20-inch-diameter natural gas TransColorado 22-inch-diameter natural gas	
Pipeline Segment B (Meeker Hub to American Soda Corridor)	Kinder Morgan 4-inch-diameter natural gas Exxon Mobil 6-inch-diameter natural gas	Entrega 36-inch-diameter natural gas EnCana 36-inch-diameter natural gas; 30-inch-diameter natural gas; 10-inch-diameter natural gas liquids; 12-inch-diameter water or natural gas
Pipeline Segment C (American Soda Corridor to Proposed EnCana Meeker Gas Plant)	EnCana (Former American Soda) 8-inch-diameter natural gas; 10-inch-diameter natural gas liquids; 12-inch-diameter water or natural gas	EnCana 36-inch-diameter natural gas; 30-inch-diameter natural gas; 10-inch-diameter natural gas liquids; 12-inch-diameter water or natural gas
Pipeline Segment D (Greasewood Hub to Segment B)	EnCana (Former American Soda) 8-inch-diameter natural gas; 10-inch-diameter natural gas liquids; 12-inch-diameter water or natural gas	
Pipeline Segment E (American Soda Corridor to Segment F intersection)	Kinder Morgan 4-inch-diameter natural gas	Entrega 36-inch-diameter natural gas
Pipeline Segment F (Greasewood Hub to Segment C Intersection)	CIG 20-inch-diameter natural gas Northwest 10-inch natural gas	
Pipeline Segment G (Greasewood Hub to Dry Fork Piceance Creek)	PSCo 12-inch natural gas	WIC 24-inch natural gas (Piceance Project)

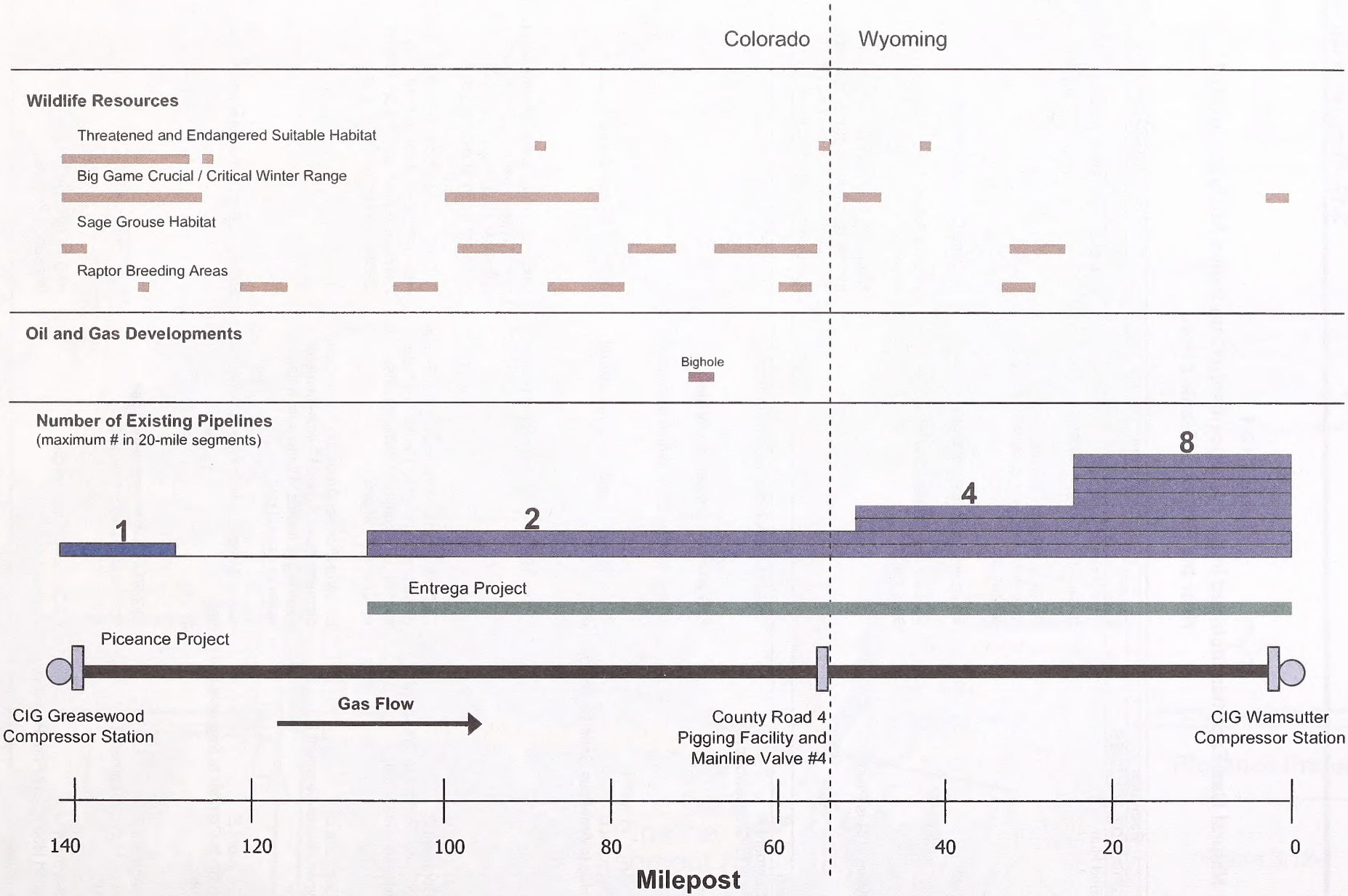


Figure 3.12-2. Location of the Piceance Project in Relation to Existing and Proposed Parallel Pipelines and Sensitive Resources

3.12.1 Cumulative Impacts to Resources

Geology

Geologic Hazards. Regional seismic hazards, including earthquake ground shaking and subsidence and fault movement sufficient to cause damage are very unlikely (see section 3.1.3). Several existing pipelines within the Piceance Project corridor cross faults but none of these faults are active. Consequently, cumulative impacts related to fault movement and seismic activity are not anticipated.

Mineral Resources. Nearly all of the proposed Piceance pipeline route, and those pipelines that parallel the proposed route, cross oil and gas producing reservoirs and/or oil shale-bearing formations. The EnCana Meeker Gas Plant site and associated pipelines overlie soda mineral and oil shale deposits. Exploitation of the soda mineral deposits has ceased, and the existing mine site would be converted to natural gas processing uses. Although the presence of facilities within the corridor that would be occupied by the existing and proposed pipelines would preclude extraction of gravel and other minerals, oil and gas production could be accomplished through well pad offsets and directional drilling. Routing the Piceance Project adjacent to the existing facilities in the established corridor would cause a very small increase in the amount of near-surface coal deposits precluded from future development.

Paleontological Resources. The Piceance Project would cross about 115 miles of geologic units classified as BLM Condition 1 between the Greasewood Hub and Wamsutter. We note that construction of pipelines and roads has previously removed surficial paleontological resources within an area of about 4,160 acres. Assuming an average disturbance width of 200 feet caused by prior projects located in Piceance Project and Entrega Project corridors, construction of the Piceance Project and Entrega Project pipelines would contribute about 832 and 1,280 acres, respectively, of surface and trench disturbance in Condition 1 units. Construction of the EnCana Meeker Gas Plant and associated pipelines would disturb less than 0.1 square mile of Condition 1 fossil formations. Pre-construction paleontological surveys have been, or would be, completed for the three projects. The respective companies would conduct trench monitoring in areas with high potential for important fossils. Fossil material would be recovered and recorded from sites that warrant these investigations. The Piceance Project would contribute to the cumulative exposure and potential loss of scientifically valuable fossils, but construction monitoring would ensure that new scientific information would be collected and added to the existing body of knowledge.

Soils

Cumulative soil disturbance within the study area from existing utility projects is 4,160 acres; the proposed projects (Piceance and Entrega Projects) would disturb about 2,112 acres. The existing pipeline projects have been installed for 10 years or more, and the construction ROWs have been partially or completely restored to pre-existing conditions. Irrigated hayfields and pasturelands have returned to their prior uses. Thus, we do not expect these existing projects combined with the proposed project impacts would significantly contribute to the cumulative impact on soils. Potential cumulative erosion could occur where the Piceance Project and Entrega Project construction disturbance areas overlap, or are located near each other between Piceance Project MP 0 and MP 105.1. BMPs for soil management and protection would be applied across all ownerships for both pipeline projects, as well as the EnCana Meeker Gas Plant.

Revegetation mixtures would be applied that are appropriate to soil conditions and expected future uses (grazing, wildlife habitat). As a consequence, the potential for cumulative erosion increases caused by one or more of these projects is low because consistent erosion control practices would be applied, and structural erosion control measures (water bars) would be integrated between adjacent pipeline projects.

The potential for cumulative impacts occurs in dissected drainages and on steep slopes where existing pipelines have already been located in the most favorable locations. Example areas where one or more new pipelines would be constructed at steep slope and drainage locations are listed in **table 3.12-2**. The primary cumulative impact issue is that surface drainage controls (e.g., water bars) installed for the new pipelines could adversely affect the existing drainage controls on adjacent pipelines. The Piceance Project would integrate its surface drainage system with that of any adjacent pipeline during final grading, thereby avoiding excessive stormwater runoff from cumulative pipeline sources in the same utility corridor.

Table 3.12-2
Steep Slope/Incised Channel Areas Crossed by Existing and Proposed Pipelines (Piceance Project and Entrega Project)

Location	Existing Pipelines (Number)	WIC Piceance Project	Entrega Project
Colorow Mountain (Entrega MP 20 to MP 21)	3		
North Side Little Snake River (WIC MP 51 to MP 53)	2	X	X
Sand Creek and Willow Creek Drainages (WIC MP 38 to MP 43)	4	X	X

Sensitive Soils. The primary cumulative sensitive soils issue is the maintenance of agricultural soil productivity where these soils have been disturbed by multiple pipelines. The primary cumulative impact issue is to ensure that surface drainage is restored across the Piceance Project construction ROW as well as adjacent pipeline ROWs, and to ensure that soil compaction is relieved in haylands and pasture. Based on a review of the proposed projects, the Piceance Project and Entrega Project pipeline construction ROWs would be adjacent to each other across irrigated pastures at the Yampa River crossing and across dry pasture at the Little Snake River crossing. Both projects propose to directionally drill the Yampa River crossing; however, both projects would cause surface disturbance in the same irrigated pasture at this crossing. WIC has proposed to horizontally drill the Little Snake crossing, while Entrega proposes an open-cut this crossing. Both WIC and Entrega have prepared, or would be required to prepare, plans to restore and monitor irrigated soils. Application of these plans would ensure that agricultural productivity would be maintained over the long term.

Soil mixing and compaction effects on other sensitive soils (shallow, rocky, saline) during construction would be addressed on a site-specific basis by WIC, Entrega, and EnCana, and would not represent cumulative impacts (see discussion above).

Invasive and Noxious Weeds. Invasive and noxious weed populations already exist or potentially exist on the land adjacent to proposed construction ROWs for the Piceance, Entrega, and EnCana Projects, based on information from local NRCS offices and the BLM. The three projects would apply invasive and noxious

weed controls prior to and during construction, including pre-construction weed control and equipment cleaning. The three projects would be responsible for monitoring and controlling weed invasions on federal lands; comparable programs have been recommended on private lands, subject to landowner agreements. Based on proposed weed control measures, and equipment cleaning, the three projects would not cumulatively contribute to new weed infestations.

Water Resources

Groundwater. Existing pipeline and other utility projects do not consume groundwater. WIC and Entrega do not propose to consume groundwater for construction or operation. Both projects would implement spill containment and control plans as required by the BLM and state agencies. No cumulative impacts on groundwater volume or quality from the Piceance and Entrega Projects are expected. Potable and process water requirements and sources for EnCana Meeker Gas Plant are not currently known. Produced water associated with EnCana's natural gas production sites would be separated at the processing plant; a portion of this produced water may be treated to make it suitable for other project purposes.

Surface Water. Both the Piceance and Entrega Projects would cross the White and Yampa Rivers using an HDD and, consequently, there would be no cumulative sediment increases at these crossings. Based on currently available schedules, the two projects would not simultaneously construct across the Little Snake River, resulting in no cumulative suspended sediment increase. WIC proposes to directionally drill the Little Snake River. **Table 3.12-3** lists the expected hydrostatic test water withdrawals for both the Piceance and Entrega Projects from the Yampa, White, and Little Snake Rivers. Both projects may withdraw hydrostatic test water during the fall and early winter of 2005, depending upon pipeline construction completion. Entrega has committed to withdraw no more than 10 percent of the average August/September flow; we have recommended that WIC coordinate with appropriate fisheries agencies and the Colorado State Engineer to determine suitable flow conditions and locations at the time of hydrostatic testing. To reduce potential cumulative dewatering effects on the Little Snake River (approximately double the volume required compared to the other rivers) during the low flow fall season, **we recommend that WIC coordinate their hydrostatic testing and dust control withdrawals with Entrega such that no Piceance and Entrega Project water withdrawals occur simultaneously from the Little Snake River.**

Table 3.12-3
Hydrostatic Test Water Withdrawal Volume Estimates from Surface Water Sources (gallons)

Waterbody	WIC	Entrega	Total
Little Snake	5,477,460	12,200,000	17,677,460
Yampa	2,877,250	6,100,000	8,977,250
White	2,417,290	8,300,000	10,717,290

EnCana has provided a preliminary estimate of 19 acre feet of water for hydrostatic testing of its entire Meeker Pipeline and Gas Plant Project. The sources of this water are not presently known. As stated

previously, potable and process water requirements for the Meeker Processing Plant are not currently known. Disposal of produced water could include evaporation ponds or injection into an approved deep geologic formation.

Both WIC and Entrega would follow the FERC Procedures for crossing smaller perennial streams and intermittently flowing waterbodies, and site-specific erosion control and bank stabilization measures would be used to prevent cumulative sedimentation increases where both projects cross the same stream channel at the same location.

The proposed Piceance Project alignment parallels numerous pipelines and other linear features that cross alluvial floodplains and fans that are subject to periodic flooding and scour. Although WIC has taken steps to avoid or limit the effects of scour, should an event occur it could affect one or more other pipelines, in addition to the Piceance Project pipeline. Potential cumulative damage interactions among pipelines as result of a major channel scouring event are not expected.

Vegetation

The total amount of vegetation that may be affected by all of the proposed projects is substantial but still relatively small compared to the abundance of similar habitat in the project area. While these projects could potentially fragment vegetation habitat, this effect would be minimal because no densely forested areas would be crossed by the proposed pipelines. This effect would be further reduced by the collocation of many of these projects with existing and proposed ROWs. All of the projects would involve mitigation measures designed to minimize the potential for long-term erosion, increase the stabilization of site conditions, and in many cases control the spread of noxious weeds, thereby minimizing the degree and duration of the cumulative impact of these projects.

Wetlands. The locations where cumulative impacts to wetlands would occur are where the Piceance Project and Entrega Project would be collocated between Piceance Project MP 0 and MP 105.1. The majority of this disturbance would be in palustrine emergent wetlands, dominated by grasses and sedges. The Piceance Project would disturb 6.9 acres, and Entrega Project 2.6 acres, for a cumulative total of 9.5 acres of palustrine emergent wetlands. The majority of this cumulative disturbance would be located at the Yampa River crossing. The EnCana pipelines would disturb about 5 acres of wetlands (irrigated pasturelands) along Pipeline Segment C (**figure 3.12-1**). WIC and Entrega would apply FERC Procedures and would be subject to conditions contained in COE 404 permits and state water quality permits. None of the wetlands crossed would be permanently filled or drained. Therefore, cumulative effects to wetlands would be minor and short-term following construction because of rapid recovery by grasses, sedges, and other herbaceous species.

Fish and Wildlife

Fisheries. The locations where cumulative impacts to fisheries could occur from stream channel disturbance, and hydrostatic water withdrawals, are crossings of the White, Yampa, and the Little Snake Rivers, where the Piceance and Entrega Projects would cross these waterbodies in the same year (late 2005). Both the Piceance and Entrega Projects would directionally drill the White and Yampa Rivers, which

would avoid increased sedimentation and channel disturbance in these two rivers. Cumulative impacts from simultaneous construction by both projects across the Little Snake River are not expected because of differing construction schedules, and because WIC proposes to directionally drill this crossing. Four EnCana pipelines would cross Piceance Creek at the same location (Pipeline Segment C, **figure 3.12-1**) resulting in increased sedimentation downstream of the open-cut crossings. The Entrega Project pipeline would not be collocated with the EnCana pipelines at this crossing location, and therefore would not incrementally add to the channel and aquatic habitat disturbance at this location. However, the Entrega Project could contribute to incremental sedimentation impacts in Piceance Creek and, depending upon the location and timing of other pipeline projects in the same drainage, could create cumulative sedimentation impacts to the creek.

Wildlife Habitat. The removal of woodland and shrubland would result in a long-term habitat reduction because the regeneration of woody species is slow in the project region. Construction and operation of the Piceance Project would incrementally add to the width of habitat discontinuities within an existing utility corridor, which may affect the movement of species dependent on these habitats and could cumulatively reduce carrying capacity for woodland- and shrubland-dependent species.

Big Game. The Piceance Project would cross elk, mule deer, and pronghorn critical or crucial winter habitats in both Colorado and Wyoming, respectively. Winter big game habitats that would be affected by the Piceance and Entrega Projects, the proposed EnCana Project, and existing pipelines and other utilities are summarized in **table 3.12-3**. The incremental surface disturbance contributed by the Piceance Project to the cumulative projects would represent a small fraction (less than 1 percent) of the individual big game ranges crossed. Both WIC and Entrega have coordinated with the CDOW, BLM, and WGFD to develop revegetation seeding mixtures that include shrub, forb, and grass species that are used by big game, as well as other target species. The application of these mixtures, followed by ROW monitoring after construction (see appendix D) would ensure that there is a long-term effort to restore big game forage in designated critical (Colorado) and crucial (Wyoming) winter habitats. Big game habitat rehabilitation measures are being determined for the EnCana Project by the BLM in consultation with the CDOW.

Table 3.12-3
Overall Big Game Habitat Disturbance (Acres) for Existing and Reasonably Foreseeable Projects within the Piceance Project Pipeline Cumulative Study Area

State/Habitat Type	Existing Pipe and Compressor Stations	Proposed Piceance Project	Proposed EnCana Meeker Pipeline and Gas Plant	Proposed Entrega Project
COLORADO				
Elk, Mule Deer, and Pronghorn Critical Winter Habitat	768	455	128	320
WYOMING				
Mule Deer Crucial/Yearlong Habitat	128	42		64
Pronghorn Crucial/Yearlong Habitat	128	104		64
Total	**1,024**	**601**	**128**	**448**

Both the Piceance and Entrega Projects would cross big game winter ranges in relatively remote areas of Colorado and southern Wyoming. WIC is currently proposing to construct a portion of its project during the winter (November through January). WIC (as well as Entrega) would be subject to winter construction closures as outlined in Wildlife Resources, section 3.5.2. Specific pipeline segment locations where winter construction would occur are not currently known. Authorization of a winter construction plan in critical and crucial big game winter ranges would be required from the CDOW, WGFD, and BLM, depending on the ownership of the land where work is proposed. Big game winter range closures are being determined for the EnCana Project by the BLM in consultation with the CDOW.

Special Status Species

With the exception of occasional foraging by bald eagles (but no winter roost sites), none of the species discussed below would be affected by the portion of the EnCana Meeker Gas Plant and Pipeline Project within the Piceance Project cumulative study area.

Bald Eagle. Bald eagles use winter roosts and occasionally nest along the White, Yampa, and Little Snake Rivers in Colorado. Both the Piceance and Entrega Projects would be subject to construction timing restrictions during critical bald eagle use seasons and would be requested to implement measures to avoid the loss of roost or nest trees. No other known projects are scheduled for work locations at these crossings that might coincide with either of these pipeline projects. Therefore, the Piceance and Entrega Projects would not contribute to cumulative impacts to bald eagle winter or nesting habitat, nor would construction activities coincide with bald eagle critical use periods along these rivers.

Black-footed Ferret and Other Prairie Dog Colony Inhabitants (Burrowing Owl, Mountain Plover). Both the Piceance and Entrega Project alignments would cross prairie dog colonies between the Yampa River and Wamsutter. The construction of both projects would cumulatively cause surface disturbance in prairie dog colonies and potential loss of prairie dog individuals, which are black-footed ferret prey. Both projects would be subject to pre-construction surveys. If ferrets were sighted, construction would not be authorized until the FERC had completed any required consultation with the FWS. If mountain plovers or burrowing owls were sighted during pre-construction surveys, construction constraint periods would be established to ensure that fledglings leave the areas before construction begins. Based on these measures, no cumulative impacts to these species are expected, with the exception of the short-term surface disturbance within prairie dog colonies during construction.

Sage Grouse. The Piceance and Entrega Projects would be located parallel to each other where both routes cross important sage grouse habitat from the north side of the Yampa River to the vicinity of Wamsutter, a distance of about 85 miles. Both projects would be subject to seasonal construction restrictions to avoid critical sage grouse breeding and brooding periods. Both projects would contribute to incremental increases in the width of the existing pipeline corridor, which is currently about 150 feet wide in this area. The combined Piceance and Entrega Project construction ROWs through this segment could be as much as 185 feet, which would more than double the pipeline corridor width in sagebrush habitats. While there has been natural sagebrush reestablishment on the existing Uinta Basin Lateral and Rocky Mountain Natural Gas Pipeline ROWs between the White River and Wamsutter, the sagebrush density and height in

the existing corridor is not yet comparable to adjacent undisturbed areas. Reduction in sagebrush cover exposes grouse to higher predation rates and may limit bird movement across these discontinuities. Reduction in sage grouse populations and reductions in use of traditional lek sites have been documented in oil and gas well fields in Alberta, Wyoming, and Colorado (Connelly et al. 2000). Other factors, such as wildfires, periodic drought, invasion by cheatgrass, and intensive livestock grazing also adversely affect sage grouse habitat suitability (Connelly et al. 2004). In summary, the Piceance and Entrega Projects would contribute to the cumulative long-term reduction in, and fragmentation of sage grouse habitat in Colorado and Wyoming by expanding an existing utility ROW. Both projects would adhere to seasonal restrictions during sage grouse breeding and brooding periods, and therefore cumulative indirect effects from increased human activity and noise during construction would not occur.

WIC proposes to offset its pipeline from the existing Uinta Basin Lateral and other adjacent pipelines by 50 feet between MP 0 and MP 98. If the WIC pipeline were constructed with an offset of 35 feet from the adjacent pipeline, the construction ROW would reduce impact to undisturbed sagebrush habitat by 15 feet in width. As a result of this overlap, WIC's new permanent ROW along this segment also would be reduced to 35 feet. We have estimated that WIC could reduce new surface disturbance by 178 acres by increasing the existing permanent ROW overlap between the two pipelines. The result of this increased overlap would be less sage grouse habitat disturbance, as well as a reduction in cumulative impacts on soils, land use, and visual resources. **Therefore, we recommend that WIC reduce the Piceance Project pipeline offset to 35 feet wherever WIC proposes to construct its pipeline adjacent to the Uinta Basin Lateral, the Entrega Project pipeline, or other existing pipelines between MP 0 and MP 98. <u>In any comments to the draft EIS or in a separate document submitted prior to the closing of the draft EIS comment period</u>, WIC should provide site-specific justification for areas where such an offset reduction (50 feet to 35 feet) is not technically feasible.**

Colorado River Fish (Colorado Pikeminnow). Both the WIC and Entrega pipelines would be directionally drilled under the White and Yampa Rivers, which contain listed fish species. Both projects would be subject to hydrostatic test water volume and timing constraints for withdrawals from these rivers. Based on these construction requirements, no cumulative water quality or channel habitat impacts on populations to this listed fish are expected.

Dudley Bluffs Twinpod (also known as Piceance Twinpod) and Dudley Bluffs Bladderpod. These two plants occupy a very small area within the Piceance Basin near the proposed Entrega Meeker Hub Compressor Station. Populations of both species are currently protected within the Dudley Bluffs ACEC, where no new surface occupancy by oil and gas facilities has been allowed by the BLM. Any future development activities on federal lands in the vicinity of the known populations would be subject to pre-construction surveys, avoidance requirements if plants are found, and FWS consultation. The Piceance and Entrega Projects would not contribute cumulative surface disturbance impacts to populations of these plants, based on the projects' location.

<u>Land Use</u>

Land Use Conversion and Construction Effects. The TransColorado North Expansion, Entrega and EnCana Projects would incrementally add to the acreage of aboveground oil and gas facilities in Colorado

and Wyoming. The Piceance Project would add additional compression within the existing CIG Greasewood Compressor Station. Entrega's proposed aboveground facilities would affect 60 acres in Colorado and 37 acres in Wyoming. The TransColorado North Expansion Project would require approximately 9 acres for new aboveground facilities (compressor station at Greasewood, MLVs and interconnections), and EnCana would require about 50 acres for its Meeker Gas Plant.

While installation of new pipelines in an existing corridor would incrementally reduce the area available for future development, use of established utility corridors concentrates cumulative land use impacts. The Piceance Project would not cumulatively affect residential land uses because the Piceance Project would not pass through any residential areas where the pipeline would be located in an existing utility corridor.

Special Management Areas. The Piceance Project route would cross 3.3 miles of the Piceance Creek SWA in pinyon-juniper and sagebrush habitats between the Greasewood Hub and the White River. The Entrega Project pipeline route would cross 5.6 miles of the same SWA in the irrigated meadows along Piceance Creek. The two projects would cause cumulative habitat reductions on these state-owned lands. We anticipate that the irrigated meadow lands can be restored in the short term, and restoration in upland sagebrush and pinyon juniper dominated areas would be longer term. Both projects would parallel each other across 2.9 miles of CDOWs Bitter Brush SWA south of the Yampa River. Both projects would coordinate with the CDOW to maintain access for recreational users (primarily hunters) during the construction period. Both pipeline routes would cross the Overland Trail near MP 20. This crossing is in a remote location, and has not been developed for public access and education about the trail.

Visual Resources

The route segments where the Piceance Project and Entrega Project pipelines would be collocated are classified as BLM VRM Class III (partial retention of existing characteristics of the landscape) by the Little Snake and Rawlins FOs. The areas where the cumulative contrast of the two pipeline construction ROWs would be most apparent to public observers would be along Moffat County Road 57 at WIC MP 101, where the Entrega Project pipeline would ascend a steep ridge and the Piceance Project pipeline would parallel the existing drainage channel, and again along County Road 57 between WIC MP 94 and MP 105.1 where the two ROWs would be about 0.25 mile west of the road on low sagebrush and grass slopes. The two ROWs would be briefly visible to travelers along U.S. Highway 40 where the pipelines would make a perpendicular crossing of the Yampa River. The remainder of the collocated pipeline segment between the Yampa River and Wamsutter is very remote, and accessible only by improved and unimproved secondary roads. Both pipelines would cross I-80 in Wyoming in an area that has already been highly modified by existing pipeline ROWs and commercial and industrial developments in the vicinity of Wamsutter.

New surface disturbance associated with the construction of the EnCana gathering pipelines and the Entrega Project pipeline would be most evident to public viewers driving along Rio Blanco County Road 5 between the proposed Entrega Meeker Hub Compressor Station and the intersection with an existing pipeline ROW (Segment B, **figure 3.12-1**). Construction of additional pipelines in the Segment C existing pipeline corridor also would be viewed by travelers along County Road 5. These areas are classified as BLM VRM Class III. This classification would likely be maintained with post-construction slope recontouring and revegetation. The proposed EnCana Meeker Gas Plant probably could not be seen from County

Road 5 because of setbacks from the bluff above the Piceance Creek drainage. No plant facility height information is available.

Cultural Resources

Both the Piceance and Entrega Projects have completed or are completing pedestrian surveys that would be followed by treatment of sites that cannot be avoided. A currently unquantifiable number of both eligible and ineligible cultural resource sites between Piceance Project MP 0 and MP 105.1 may experience cumulative surface disturbance from these projects. A more specific number of affected sites will be determined upon analysis of both project proposals for site avoidance. Both routes intercept the Overland Trail near Piceance Project MP 20. A plan to mitigate impacts to any intact portions of the trail would be required for both projects. If the combined ROW corridor is widened to previously undisturbed areas, visual impacts to eligible historic sites (such as the Cherokee Trail) may occur.

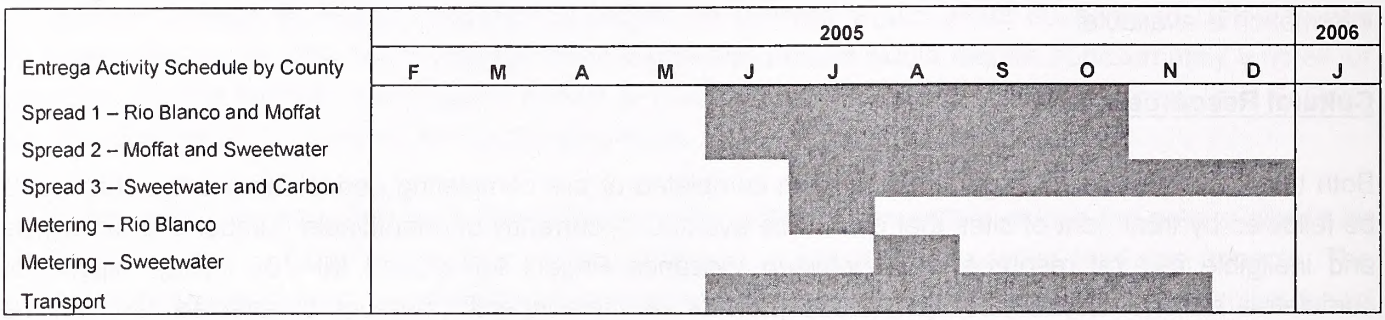
The EnCana gathering pipelines (Segment B, **figure 3.12-1**) would be collocated with the Entrega Project Pipeline over a distance of about 2 miles along Piceance Creek. Insufficient information is currently available to evaluate potential cumulative project effects on eligible sites.

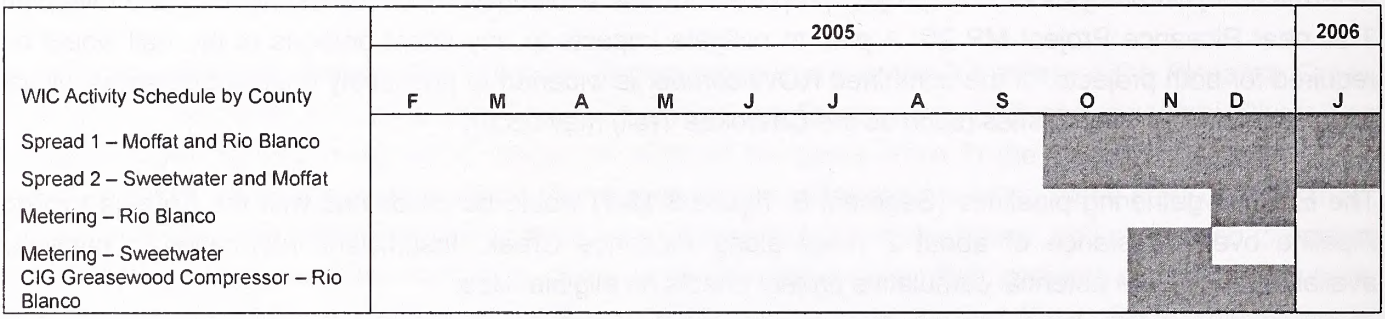
Socioeconomics

The socioeconomic discussion is focused on the potential interactions between the Piceance and Entrega Projects. As discussed previously, the EnCana Meeker GasPlant and pipeline project construction could overlap with the Piceance and Entrega Project pipeline construction periods during the second half of 2005. Because specific EnCana construction time frames have not been established, this analysis acknowledges a risk of construction period overlaps, but does not attempt to quantify the effects on temporary housing availability or fiscal costs and benefits.

Employment. Cumulative workforce impacts between the Piceance and Entrega Projects could occur in Carbon and Sweetwater Counties, Wyoming and Moffat and Rio Blanco Counties, Colorado. Entrega proposes to construct its Meeker Hub Compressor Station – Wamsutter pipeline segment from north to south. WIC proposes to construct the Greasewood – Wamsutter pipeline segment from south to north. As a consequence, there is the potential for the peak cumulative workforce to coincide in time and space in the vicinity of U.S. Highway 40, west of Craig. Smaller scale overlaps could occur in conjunction with the construction of additional compression, other ancillary facilities, or in the event of changes in scheduling by one or the other of these projects. We examined the proposed schedules for both projects to estimate the time and location of greatest workforce overlap between the two projects. **Figure 3.12-3** illustrates the construction activities and the expected distribution of the workforce along both pipeline routes. We assumed that the workforce for the Piceance Project would consist of 8 percent local hires.

Housing. **Figure 3.12-4** illustrates the potential housing demands within various nearby communities for the combined Piceance and Entrega Project workforces in late 2005. The majority of the available temporary housing to serve these spreads is located in Craig, Colorado, and Rawlins, Wyoming. The infrastructure to accommodate short-term worker increases in both Baggs and Wamsutter is very limited. This region is





Entrega Workforce Distribution by County	2005											2006
	F	M	A	M	J	J	A	S	O	N	D	J
Spread 1– Rio Blanco and Moffat					450	450	450	450	450			
Spread 2 – Moffat and Sweetwater					405	405	405	405	405			
Spread 3 – Sweetwater and Carbon						450	450	450	450	450	450	
Metering – Rio Blanco						68						
Metering – Sweetwater							68					
Transport					90	90	90	90	90	90	90	
Total					945	1463	1463	1395	1395	540	540	

WIC Workforce Distribution	2005											2006
	F	M	A	M	J	J	A	S	O	N	D	J
Spread 1 – Moffat and Rio Blanco									250	250	215	100
Spread 2 – Sweetwater and Moffat									250	250	215	100
Metering – Rio Blanco											65	
Metering – Sweetwater										65		
CIG Greasewood Compressor – Rio Blanco										50	50	
Total									500	615	540	200
Combined					945	1463	1463	1395	1895	1155	1080	200

Figure 3.12-3. Piceance Project and Entrega Project 2005 Construction Schedule and Workforce Estimates

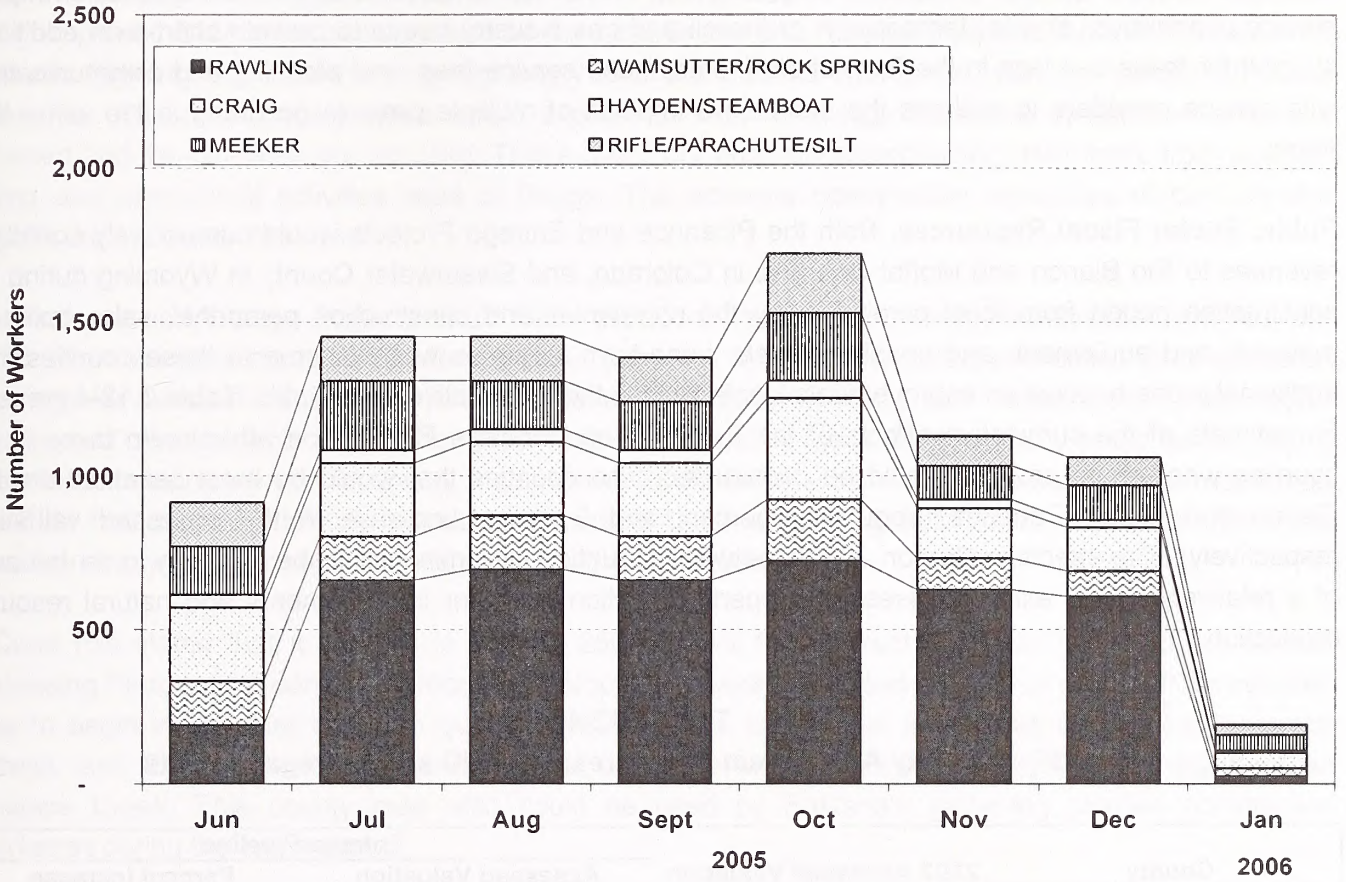


Figure 3.12-4. Combined Piceance and Entrega Project Workforce Estimates, Projected Place of Residence

currently experiencing oil and gas well field development, which increases the competition for temporary housing on an on-going basis. Over the years, a large inventory of temporary housing has developed in Sweetwater and Carbon Counties to meet demands from the oil, gas, and mineral extraction industries. Thus, it is anticipated that the short-term influx of pipeline workers from both projects can be absorbed by the motels (3,375 rooms) and mobile home/RV spaces (6,832) in those counties. The availability of temporary housing is more limited in Moffat and Rio Blanco Counties. Because both projects would still be active during the fall months, there could be short-term, potentially significant shortfalls in temporary housing and camp space availability in Meeker and Craig during the hunting season months of October and November.

Public Services and Facilities. Oil and gas industry workforces typically consist of a large fraction of non-residents who leave the region as drilling and construction projects are completed if other job opportunities in the oil and gas industry are not available. As a consequence, there may be short-term demands for public services from this population, but major investments in public infrastructure (e.g., new schools, hospitals) would not be required. The oil and gas workforce is dispersed over a wide area at long distances from emergency services (e.g., hospitals, fire fighting). During public scoping, Rio Blanco County law enforcement and public safety officials expressed concern about the long distances for emergency

response (the nearest major hospital is in Grand Junction) and insufficient local staff to respond to potential simultaneous emergencies. This input suggests that investment is needed at the county level to expand service capabilities, at least temporarily, or the oil and gas industry needs to provide short-term additional support for these services in the form of staff, equipment, service fees, and planning and communications with service providers to address the cumulative impacts of multiple projects occurring in the same time frame.

Public Sector Fiscal Resources. Both the Piceance and Entrega Projects would cumulatively contribute revenues to Rio Blanco and Moffat Counties in Colorado, and Sweetwater County in Wyoming during the construction period from local purchases by the companies and construction personnel, sales taxes on materials and equipment, and housing rentals. Long-term revenues would accrue to these counties from additional property taxes on improvements located within their respective boundaries. **Table 3.12-4** presents an estimate of the cumulative effects of the Piceance and Entrega Projects on ad valorem taxes in the counties where both projects would be constructed. The counties that would be most benefited are Rio Blanco and Moffat Counties (about a 6 percent and 9 percent increase in the assessed valuation, respectively). The effects in Carbon and Sweetwater Counties, Wyoming would be relatively lower because of a relatively higher existing assessed property valuation on other improvements and natural resource production.

Table 3.12-4
Cumulative County Ad Valorem Tax Increases - WIC and Entrega Projects

		Entrega Pipeline	
County	**2003 Assessed Valuation**	**Assessed Valuation**	**Percent Increase**
Carbon County	$382,269,728	$7,412,000	1.94%
Sweetwater County	$11,607,419,952	$6,043,000	0.05%
Moffat County	$298,876,180	$14,068,000	4.71%
Rio Blanco County	$304,607,460	$6,192,000	2.03%
		Piceance Project Pipeline	
County	**2003 Assessed Valuation**	**Assessed Valuation**	**Percent Increase**
Carbon County	$382,269,728	NA	NA
Sweetwater County	$11,607,419,952	$4,642,186	0.04%
Moffat County	$298,876,180	$12,445,476	4.16%
Rio Blanco County	$304,607,460	$10,672,096	3.50%
		Combined	
County	**2003 Assessed Valuation**	**Assessed Valuation**	**Percent Increase**
Carbon County	$382,269,728	$7,412,000	1.94%
Sweetwater County	$11,607,419,952	$10,685,186	0.09%
Moffat County	$298,876,180	$26,513,476	8.87%
Rio Blanco County	$304,607,460	$16,864,096	5.54%

Transportation. WIC and Entrega propose to construct their projects in the same construction season (mid to late 2005) from Deception Creek in Moffat County to Wamsutter. If WIC and Entrega simultaneously construct in areas where the pipelines are closely parallel to each other, there would likely be substantial increases in construction traffic on Rio Blanco County Road 7 and Moffat County Road 57 between Meeker

and Maybell; Colorado Highway 13 between I-70 and the state line south of Baggs, Wyoming; Wyoming Highway 789 between Baggs and Wamsutter; and U.S. Highway 40 between Craig and Maybell. Improved and unimproved BLM roads administered by the Little Snake and Rawlins FOs would provide access from Colorado Highway 13 and Wyoming Highway 789 to the pipeline ROWs between the Yampa River and Wamsutter. These secondary roads would experience short-term high increases in traffic while pipe is delivered and the pipelines are installed. These roads are currently experiencing daily traffic from well field drilling and operational activities west of Baggs. The accurate construction schedules of both pipeline projects are not currently known.

The Piceance and Entrega Projects would follow transportation plans to manage construction vehicles, and would follow standard measures for fence repair, provision of temporary gates, and provision of temporary crossings for livestock. Equipment turning onto and off state highways and access roads may require flagmen and other controls to limit the risk of accidents on public roads. Both projects would be required to obtain local crossing permits for county roads, which would define weight limits and maintenance standards. The BLM has defined minimum standards for maintenance of existing BLM roads, and construction and operation of any new permanent roads on BLM-administered land.

EnCana has stated that it expects to employ 250 workers to construct the initial phase of the Meeker Processing Plant over a period of 6 months. A proposed construction start date is not known. If construction were to begin in the third or fourth quarter of 2005, there is potential for overlap among the Piceance, Entrega, and EnCana workforces and material deliveries on Rio Blanco County Road 5 that parallels Piceance Creek. This county road also could be used by EnCana's gathering pipeline construction workforces during the same period.

In summary, the Piceance and Entrega Projects overlapping pipeline construction periods could result in short-term (1 to 2 months) cumulative increases in traffic on secondary BLM and county roads between U.S. Highway 40 in Colorado and I-80 in Wyoming. Roads used by construction equipment would be maintained, and any damage repaired after construction is completed. Consequently, long-term cumulative impacts to roads and traffic flow are not expected. Potential overlaps between the Entrega Project pipeline and EnCana processing plant and gathering pipeline construction workforces in the second half of 2005 are possible along Rio Blanco County Road 5, but cannot be confirmed based on available information.

Air Quality and Noise

Cumulative fugitive dust (particulate) increases may occur where the Piceance and Entrega Projects are using the same access road system to construct their projects (see Transportation above). Both projects would follow state and local requirements for dust control on roads and excavated surfaces.

On a local scale, cumulative increases in air pollutant emissions could occur where new compressor stations are sited at or near existing stations. A new natural gas-fired compressor (1,650 site-rated horsepower) would be installed within the existing CIG Greasewood Compressor Station to provide compression for the WIC Piceance Project pipeline. TransColorado's new station at Greasewood would include three natural gas-fired compressors totaling 4,670 site-rated horsepower. Entrega would construct a 15,400 site-rated horsepower compressor station near the proposed Meeker Hub, a 30,000 site-rated

horsepower compressor station at Bighole in Moffat County (near Piceance Project MP 71), and a third 20,620 site-rated horsepower station at Wamsutter (near Piceance Project MP 0) in Sweetwater County, Wyoming. EnCana would install several natural gas combustion heaters at its Meeker Gas Plant to remove carbon dioxide and water from the natural gas received from the gathering pipeline system. EnCana proposes to power its natural gas compressors with electricity provided from an existing transmission line. Each compressor station and gas plant is required to obtain a construction and operation permit from either Colorado and Wyoming, and potential interactions with nearby emission sources must be considered in these permit applications.

On a regional scale, the gas-fired combustion turbines at the CIG and proposed TransColorado Compressor Stations providing compression for the Piceance Project and the three Entrega compressor stations would emit criteria pollutants, and small quantities of hazardous air pollutants. Recent regional air cumulative studies have been completed that address multiple pollutant emission sources within the same regional air sheds where the Piceance, Entrega, and TransColorado Projects compression would be located (BLM 2004a,b). The Piceance, Entrega, and TransColorado compressor stations are included as a type of foreseeable source in these analyses. The following paragraphs summarize the major conclusions of these regional studies.

Ambient Air Quality and Air Quality Related Values. The CALPUFF model was applied to estimate the far-field (50 kilometer [km] to over 200 km) ambient air quality and Air Quality Related Values (AQRV) impacts from the Desolation Flats project (BLM 2004a). The far-field analysis estimates the total impacts due to the existing background and foreseeable project sources. Impacts on air quality were estimated at nearby Class I and Class II areas. The sensitive areas include:

- Bridger Wilderness (Class I);
- Fitzpatrick Wilderness (Class I);
- Popo Agie Wilderness (Class II);
- Wind River Roadless Area (Class II);
- Dinosaur National Monument (Class II);
- Savage Run Wilderness (Class I);
- Mount Zirkel Wilderness (Class I); and
- Rawah Wilderness (Class I).

The protocol for the Desolation Flats assessment was to perform an impact analysis for 592 gas wells that would be developed at 555 locations, with a forecasted success rate of 65 percent resulting in 385 producing wells. The producing wells would be supported with six compressor stations and two gas processing plants. Compression and processing requirements are estimated at 32,000 horsepower. The CALPUFF model was used to estimate ambient NO_2, SO_2, PM_{10}, and $PM_{2.5}$ concentrations for comparison with federal and state ambient air quality standards and PSD Class I increments and to address potential AQRV impacts. The estimated concentrations for all pollutants are far below the applicable federal and state ambient air quality standards and are less than one percent of the Class I PSD increments (BLM 2004a).

The Roan Plateau CALPUFF studies (BLM 2004b) found similar results at Class I areas with respect to the reasonably foreseeable development in the region. The number of new wells in the maximum development scenario for the Roan Plateau was 3,055. It was calculated that this level of development would require up to 67 new 1,000 horsepower compressors and 1 new glycol dehydrator per gas well.

NAAQS were not exceeded for any pollutant or averaging period, and all concentrations include background. The PSD Increments were not exceeded for any pollutant or averaging period. Although these results are compared to the PSD increment consumption thresholds, they do not, nor are they intended to, represent a true PSD increment consumption analysis.

Visibility Impacts. There are two thresholds of visibility change that are used for determining the significance of potential impacts: the number of days in which the visibility is 1 deciview or greater; and the number of days in which the change is 0.5 deciview or greater. A deciview is a 10 percent reduction in visibility as compared to background concentrations of atmospheric haze components, as measured by a specialized instrument called a nepholometer. The FS uses the 0.5 deciview change as a threshold to protect visibility in sensitive areas. The 1.0 decivew change threshold is used in the Regional Haze Regulations as a small but just noticeable change in haziness and has been used by other agencies as a management threshold. The 0.5 and 1.0 deciview change thresholds are neither standards nor regulatory limits. Rather, they are used to alert the affected land managers that potential adverse visibility impacts may exist and the land manager may wish to look at the magnitude, duration, frequency, and source of the impacts in more detail in order to make a significance determination.

The Desolation Flats EIS analyzed far field impacts on visibility degradation at the sensitive receptor areas using the Interagency Workshop on Air Quality Modeling/Federal Land Managers' Air Quality Related Values Workgroup-recommended method (BLM 2004a) and found that visibility impacts do not exceed the thresholds of 0.5 or 1.0 deciview change levels. Therefore, it is not expected that visibility impacts from the proposed pipeline compressors would cumulatively contribute to atmospheric conditions that would exceed these thresholds. The Roan Plateau study found that visibility at three Class I areas in Colorado may be reduced on a few days due to existing sources. However, construction and operation of the proposed pipeline would not materially contribute to cumulative visibility impacts because the reasonably foreseeable development studied for the Roan Plateau EIS included future emissions estimates that encompass the proposed compression at the Greasewood Hub and the proposed Meeker Hub for the Piceance, Entrega, and TransColorado Projects.

Noise. WIC does not currently propose to construct new compressor stations for its project, but a new compressor inside the existing CIG Greasewood Compressor Station is proposed. This new compression along with the proposed TransColorado compressor station at the Greasewood Hub would provide the necessary compression for WIC's proposed delivery volumes. These combined facilities will contribute to the overall noise in the immediate area. However, the noise from these combined facilities is not anticipated to impact permanent residences, since the closest residence is located approximately 4 miles from the CIG Greasewood Compressor Station.[21]

[21] The TransColorado Greasewood Compressor Station noise impacts will be addressed in the forthcoming Environmental Assessment (FERC Docket No. CP05-45).

System Safety and Reliability

As discussed previously, we conclude that no cumulative operational safety impacts are expected among pipelines and other facilities located in the same general utility corridor because of the spacing between pipelines, the depth of soil cover, and requirements to meet DOT Minimum Federal Safety Standards in Title 49 CFR Part 192.

ALTERNATIVES

CHAPTER 4

4.0 ALTERNATIVES

Several project alternatives have been identified and evaluated to determine if they would be reasonable and provide environmental benefits when compared to the proposed action. The range of alternatives includes the No Action Alternative, System Alternatives, Route Alternatives, Route Variations, and Aboveground Facility Location Alternatives.

The evaluation criteria used for developing and reviewing alternatives were:

- technical feasibility and practicality;
- significant environmental advantage over the proposed action; and
- ability to meet the project's stated objective of transporting natural gas from supply basins in the central Rocky Mountains to interstate shippers at Wamsutter, Wyoming, who would carry the gas to markets in both the western and central U.S.

The development and analysis of alternatives were shaped by the public and agency interactions that occurred during the scoping portion of the FERC's NEPA Pre-filing Process. WIC established a preliminary pipeline centerline prior to initiating the Pre-filing Process. This was followed by scoping meetings and agency field reviews to obtain feedback on the proposed routing. WIC developed new route segments to respond to specific issues, and then followed up with landowners and agencies to confirm proposed changes. The route alignment that WIC filed on January 24, 2005, represents the proposed action analyzed in this draft EIS.

The alternatives that are carried forward in this analysis are those that:

- offer potential environmental impact reduction benefits relative to the proposed action; and
- represent deviations from an existing pipeline corridor where we believe the potential environmental costs/benefits favor locating the proposed pipeline segment outside the corridor. Several short route variations have already been evaluated and the preferred variations have been incorporated into the WIC proposed action. The reasons for incorporating these route variations are explained in WIC's Resource Report 10 (available on the FERC website), and therefore, are not further discussed here.

4.1 No Action

The actions triggering this environmental review were WIC's applications to the FERC for a Certificate and to the BLM for new or amended ROW grants across public (federal) lands. The FERC and the BLM have three courses of action in processing these applications. They may:

1. grant the approvals with conditions;
2. grant the approvals without conditions; or
3. deny the approvals.

If the FERC and the BLM deny WIC's applications, the environmental impacts identified in this draft EIS would not occur and the stated objectives of WIC's proposal would not be met. Specifically, customers in the western and central U.S. would not have access to the 350 Dthd (341 MMcfd) of natural gas that would be transported by the Piceance Project. Additionally, producers in the Piceance and neighboring production basins (as well as the Central Rocky Mountains supply region) would be denied up to 350 Dthd of new regional transportation capacity.

If the Entrega Project were approved and constructed, the capacity of this new 36-inch-diameter pipeline could be sufficient to transport WIC gas volumes to WIC's interconnections with the interstate pipeline system at Wamsutter, Wyoming over the short term (estimated to be less than 5 years). Entrega proposes to initially convey about 750 MMcfd out of a capacity of 1,500 MMcfd from the Piceance Basin to Wamsutter. However, as Entrega's shippers increase volumes through the Entrega pipeline, the WIC volumes would likely be displaced. As a consequence of this displacement, an alternate gas transportation system, or modifications of the Entrega Project system (e.g., additional compression) would be required to accommodate the WIC gas volumes (see section 4.2, System Alternatives).

As gas production increases in the Piceance Basin and surrounding gas supply basins, the need for a new pipeline that provides a similar level of service as the WIC system also would increase. If other natural gas pipelines and associated facilities are constructed in the future instead of the proposed Piceance Project, each future project would result in its own specific impacts that could be less or greater than the Piceance Project.

Alternative energy sources (e.g., solar, hydroelectric, geothermal, fuel cells) are not physically or commercially available in the market area to meet project objectives.

Denying authorization of the proposed project also could result in more expensive and less reliable natural gas supplies for the end-users and/or greater reliance on alternative fossil fuels, such as coal or fuel oil. Increased use of alternative fossil fuels would likely result in greater emissions of SO_2, NO_x, and PM_{10} compared to other fossil fuels (**table 4.1-1**). If coal were used in lieu of natural gas (assuming 341 MMcfd for 365 days), annual emissions of SO_2, NO_x, and PM_{10} would be 10,800, 8,795 and 400 tons higher, respectively.

4.2 System Alternatives

System alternatives are those that use other pipeline systems to achieve the objectives of the proposed action. A system alternative would make it unnecessary to construct all or part of the Piceance Project. One type of system alternative would require modifications or additions to another existing pipeline system in order to increase its capacity. Another type of system alternative would require that a new pipeline system be constructed. Such modifications or additions would result in some measure of environmental impact; the

impact could be less than, similar to, or greater than that associated with construction of the proposed project.

Table 4.1-1
Comparison of Controlled Emission of Criteria Pollutants for Three Boiler Types
(Tons Per Year)

Boiler Type	SO_2 [1]	NO_x [2]	PM_{10}
Coal-fired	10,800	8,800	400
Oil-fired[3]	7,000	7,100	1,800
Natural Gas-fired	0	4.6	100

Assumptions:
[1] Assumes 1.2 percent sulfur coal, 1 percent sulfur oil, pipeline quality gas.
[2] Assumes Low NO_x burners on all units, which is the standard burner design for new installations.
[3] Fuel oil-fired boiler assumes Number 5 oil, tangentially fired.

Source: Calculated from EPA Compilation of Air Pollutant Emission Factors AP42 Fifth Edition based on typical standard configurations and assumptions. Individual boiler performance may be different from this example.

4.2.1 Other Existing Pipeline Systems

The major interstate pipelines that pass through the Greasewood Hub are the Williams' Northwest Pipeline Corporation (Northwest Pipeline) 26-inch-diameter pipeline (including a 10-inch-diameter lateral pipeline between the Piceance Basin and Rangely, Colorado), the CIG Uinta Basin Lateral 20-inch-diameter pipeline, Questar's Dragon Trail 14-inch-diameter line, and Kinder Morgan's TransColorado 22-inch-diameter pipeline. Entrega and WIC provided estimates of the subscribed capacity of these pipelines in relation to actual volumes transported. **Table 4.2-1** summarizes this investigation.

Table 4.2-1
Capacity and Subscription Status of Existing Interstate Pipelines Serving the Piceance Basin

Pipeline	Capacity (MMcfd)	Recent Gas Flow (MMcfd)	Firm Subscriptions (MMcfd)
CIG Uinta Basin Lateral	222	198	222
CIG to Northwest Pipeline	290	190	290[1]
Northwest Pipeline Lateral	40	26	4.7
Questar Dragon Trail	120	40	120
TransColorado	385	338	385
Total	1,057	792	1,021.7

[1] WIC's and Entrega's estimates based on best available information.

In addition to capacity, **table 4.2-1** provides the recent gas flow and firm subscriptions for these existing systems. Information in **table 4.2-1** was compiled and extrapolated from interstate pipeline public websites, contacts with pipeline personnel, and recent industry presentations on the subject matter. The table includes

a "CIG to Northwest Pipeline" category because CIG delivers significant quantities of gas to Northwest Pipeline at this point. However, since the Northwest Pipeline system transports gas from Utah's Uinta Basin, not all of the capacity or flows shown are necessarily from the Piceance Basin. This observation also generally applies to the CIG Uinta Basin Lateral, which transports gas from both the Uinta and Piceance Basins.

Assuming that these pipelines continue to carry the gas volumes recently transported (rather than their firm subscription volumes) for the immediate future, the combined existing systems would accommodate about 76 percent of WIC's proposed volumes. Given the diameters of these existing pipelines (the largest is the Northwest Pipeline at 26 inches), transport of WIC's remaining volumes would require either:

a) additional looping and additional compression on multiple systems or
b) looping one system in its entirety.

While option (a) might disperse the associated environmental impacts, it is unlikely that this option would substantially reduce impacts when compared to the Piceance Project. Furthermore, the use of multiple pipeline systems would not meet the Piceance Project's objective of gas deliveries to Wamsutter.

The fact that both WIC and Entrega have signed agreements with new shippers sufficient to finance and construct entirely new, large-diameter pipelines (24 and 36 inches in diameter, respectively) indicates that the amount of capacity needed exceeds that which could be obtained economically by adding looping and/or compression to the existing pipeline systems. In other words, we assume that at least one existing system would have to be completely looped to accommodate the proposed WIC volumes. This, in effect, is what WIC proposes (i.e., to loop CIG's 20-inch-diameter Uinta Basin Lateral between the Piceance Basin and Wamsutter). Given that the impacts associated with looping an entire pipeline system between the Piceance Basin and Wamsutter would be essentially equivalent to those associated with WIC's proposal, the use of existing systems would not provide a significant environmental advantage over the proposed action. Therefore, this alternative was eliminated from further consideration.

4.2.2 Proposed Pipeline Systems

Entrega's Project represents a new pipeline system that could potentially convey WIC's gas to Wamsutter by interconnecting with the Piceance Project's supplier at the proposed Meeker Hub, increasing the diameter of its pipeline, and/or adding compression.

Several commentors requested that we examine the alternative of transporting the Piceance Project's gas and the Entrega Project's gas in a single pipeline between the Piceance Basin and Wamsutter. **Table 4.2-2** presents the facilities proposed by WIC and Entrega individually, as well as the facilities required by a "one-pipe" alternative sized to carry the combined gas volumes (i.e., 1,850 MMcfd) to Wamsutter by either Entrega or WIC.

Table 4.2-2
Comparison of Facilities Required by Entrega and WIC Proposed Actions and "One-Pipe" Alternative[1]

Facilities and Location	WIC Piceance Project Proposed Action	Entrega Project Proposed Action	WIC "One-Pipe" Alternative	Entrega "One-Pipe" Alternative
Pipeline (miles @ diameter)				
Pipeline to Wamsutter	141.7 @ 24"	136 @ 36"	141.7 @ 42"[2]	136 @ 36"[2]
Compression (horsepower)				
Meeker Hub	---	15,400 (ISO)[3]	15,400 (ISO)[4]	31,150 (ISO)[5] (15,400 + 15,750)
CIG Greasewood Hub	2,820 (ISO)	---	28,120 (ISO) (2,820 + 25,300)	---
TransColorado North Expansion	4,670 (ISO)		4,670 (ISO)	
Bighole	---	30,000 (ISO)[3]	---	65,850 (ISO) (30,000 + 35,850)
Total Compression	**7,490 (ISO)**	**45,020 (ISO)**	**48,190 (ISO)**	**97,000 (ISO)**
Metering and Pressure Regulation Requirements				
Meeker Hub	---	one receipt meter		one receipt meter
CIG Greasewood Hub	one receipt meter	---	one receipt meter	one receipt meter
Wamsutter	two delivery meters	two receipt/delivery meters	two receipt/delivery meters	two receipt/delivery meters
Pressure Regulation	---	---	one/two regulators	one/two regulators

1 Facilities needed to deliver Piceance Project and Entrega Project proposed gas volumes from the Piceance Basin to Wamsutter, Wyoming. Additional compression required by Entrega to transport gas to the Cheyenne Hub is not included.
2 This mileage does not account for a "linking" pipeline between the Greasewood and Meeker Hubs. Delivery of WIC's 341 MMcfd to Entrega's proposed Meeker Hub Compressor Station would require about 7 miles of 24-inch-diameter pipeline. Delivery of Entrega's 1,500 MMcfd to WIC at the Greasewood Hub would require about 7 miles of 36-inch-diameter pipeline.
3 Entrega's estimate of ISO horsepower. Entrega will finalize compression requirements after price negotiations are completed in mid-2005.
4 This figure represents total compression available at the Meeker Hub, which is designed to transport gas over a distance of approximately 76 miles. Less compression would be required to transport gas over a distance of 7 miles from the Meeker Hub to the Greasewood Hub.
5 Includes 12,600 (ISO) horsepower required to bring gas received from WIC up to Entrega's system inlet pressure requirements (1,280 psig).

Each company approached the one-pipe alternative differently. Entrega would increase compression at its proposed Meeker Hub and Bighole Compressor Stations, but would leave the pipeline diameter at 36 inches. As a consequence, Entrega's total horsepower (97,000 ISO) for transporting gas for both projects would be 44,490 horsepower more than if the two projects were constructed independently. WIC would increase the diameter of the shared pipeline to 42 inches, and the estimated total horsepower (48,190 ISO)

would be 4,320 horsepower less than if the two projects were constructed independently. Based on these design differences, WIC's one-pipe alternative approach would reduce environmental impacts since the surface disturbance requirements between construction of a 36-inch and a 42-inch-diameter would be nearly the same, but the compressor operational emissions for the WIC alternative would be about half as much as Entrega's, based on the relatively smaller horsepower requirements.

While attractive in concept, this alternative would present a number of challenges. From an engineering standpoint, both companies plan on receiving natural gas from different producers at different delivery pressures. Also, WIC and Entrega have commitments with their shippers to deliver volumes at different pressures at their respective interconnections. While not impossible, melding the various factors and requirements together into a common system would be extremely difficult. As evidence of this fact, we note that Entrega and WIC attempted to resolve these differences and negotiate a common pipeline for several months before deciding to go forward as individual pipelines. For these reasons, we eliminated the one-pipe system alternative from further consideration. However, in recognition that a single pipeline would significantly reduce the surface disturbance caused by construction of two pipelines, we developed and analyzed a "Collocation Alternative" that examines the options for collocating the two projects in the same ROW to the extent technically feasible. This alternative is presented in section 4.3.2.

4.3 Route Alternatives

A route alternative is defined as a route deviation that extends over several miles and is designed to address a single major environmental constraint, or multiple environmental issues, associated with the proposed action. In examining route alternatives, we assumed the point of origin and the terminus would be the same as the proposed project. Route alternatives for the Piceance Project considered public and agency scoping input, as well as impacts to sensitive environmental resources.

In our evaluation of the Piceance Project route, we considered routing options (via other utility corridors) that would reduce overall environmental impacts associated with the proposed pipeline route between the Greasewood Hub and Wamsutter. These routing options would avoid or reduce environmentally sensitive resources such as waterbodies, wetlands, SWAs, and upland wildlife habitat. Wamsutter lies directly north of the Piceance Basin; existing pipelines have established the shortest routes with the least topographic constraints between these two points. Routing proposed pipelines with other utility corridors is generally preferred by land management agencies, land use planners, and other regulatory agencies and has several inherent engineering and environmental advantages. Perhaps the most important of the environmental advantages is that new land disturbance is minimized. By overlapping a proposed construction ROW with other previously disturbed existing ROWs, the amount of new land disturbance can be reduced significantly. This is particularly important in arid environments where revegetation is slow and where the evidence of construction impacts often persists for years. Because of these advantages, routes that deviate from the existing ROW are often driven by issues such as engineering constraints that make remaining adjacent to the existing ROW impractical and/or result in increased environmental impact.

For these reasons, the location where WIC has proposed a route deviation from the existing Uinta Basin Lateral between MP 105.1 and the CIG Greasewood Compressor Station is examined below in

section 4.3.1. In addition, route alignment alternatives that would limit the overall disturbance of both the Piceance and Entrega Projects also were examined (section 4.3.2).

4.3.1 Uinta Basin Lateral Route Alternatives

Several route alternatives were considered along the final 36.6 miles of the Piceance Project where the proposed pipeline route deviates from the Uinta Basin Lateral. These route alternatives were considered because they could disturb less upland wildlife habitat and would parallel more miles of existing pipeline corridors. We examined existing pipeline corridors that extend northward or westward from the Greasewood Hub that could make further use of the existing Uinta Basin Lateral ROW south of MP 105.1. Because the proposed Entrega Project route makes use of the Uinta Basin Lateral ROW, our analysis also included a review of the proposed Entrega Project route along this same segment (**figure 4.3-1**). Three possible existing pipeline corridors were identified (Pipeline Segments A, F, and D) as route alternatives to the Piceance Project proposed action (Pipeline Segment G).

1. We concluded that Segment A would not be a feasible route because it would cross the BLM Dudley Bluffs ACEC and new surface disturbance in this designated area would not likely be approved by BLM if other route alternatives were available.

2. Segment F currently includes the 20-inch-diameter CIG Uinta Basin Lateral pipeline and the Northwest 10-inch-diameter natural gas pipeline. Aside from its descent down a steep slope into Greasewood Gulch, there are no apparent major physical constraints for routing an additional pipeline in this corridor. This route segment north to MP 105.1 has been designated the Uinta Basin Lateral Route Alternative A. This alternative route essentially follows the existing Uinta Basin Lateral between the Greasewood Hub and MP 105.1 (about 33.2 miles). This alternative also would parallel the Entrega Project proposed route over a distance of approximately 25 miles.

3. Segment D currently includes three 8- to 12-inch-diameter pipelines that were used by American Soda as water and soda ash slurry pipelines. These pipelines were purchased by EnCana and will be used for natural gas liquids or produced water service. We did not identify any major physical constraints that would preclude the use of this existing pipeline corridor for an additional pipeline. This route segment, plus the proposed Entrega Project route north to MP 105.1 (including in part pipeline segment F) has been designated the Uinta Basin Lateral Route Alternative B. From Greasewood, this route alternative follows the EnCana pipelines for about 5.5 miles, the Entrega Project route for about 7 miles, and then follows the existing Uinta Basin Lateral for about 25 miles (which also is followed by the Entrega Project route).

Figure 4.3-2 illustrates the geographical relationships of the Uinta Basin Lateral Route Alternatives. The results of our analysis are presented in **table 4.3-1**.

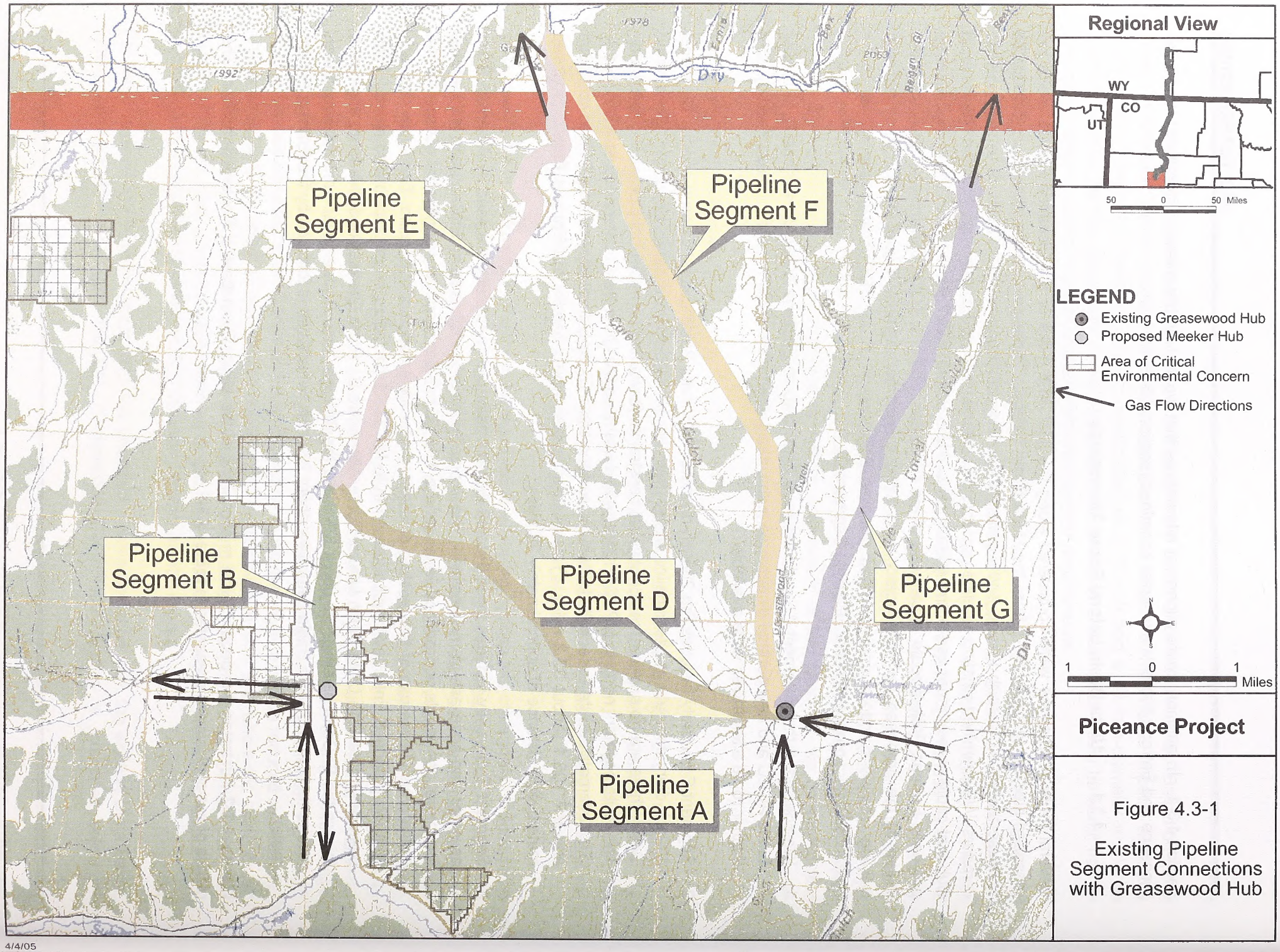
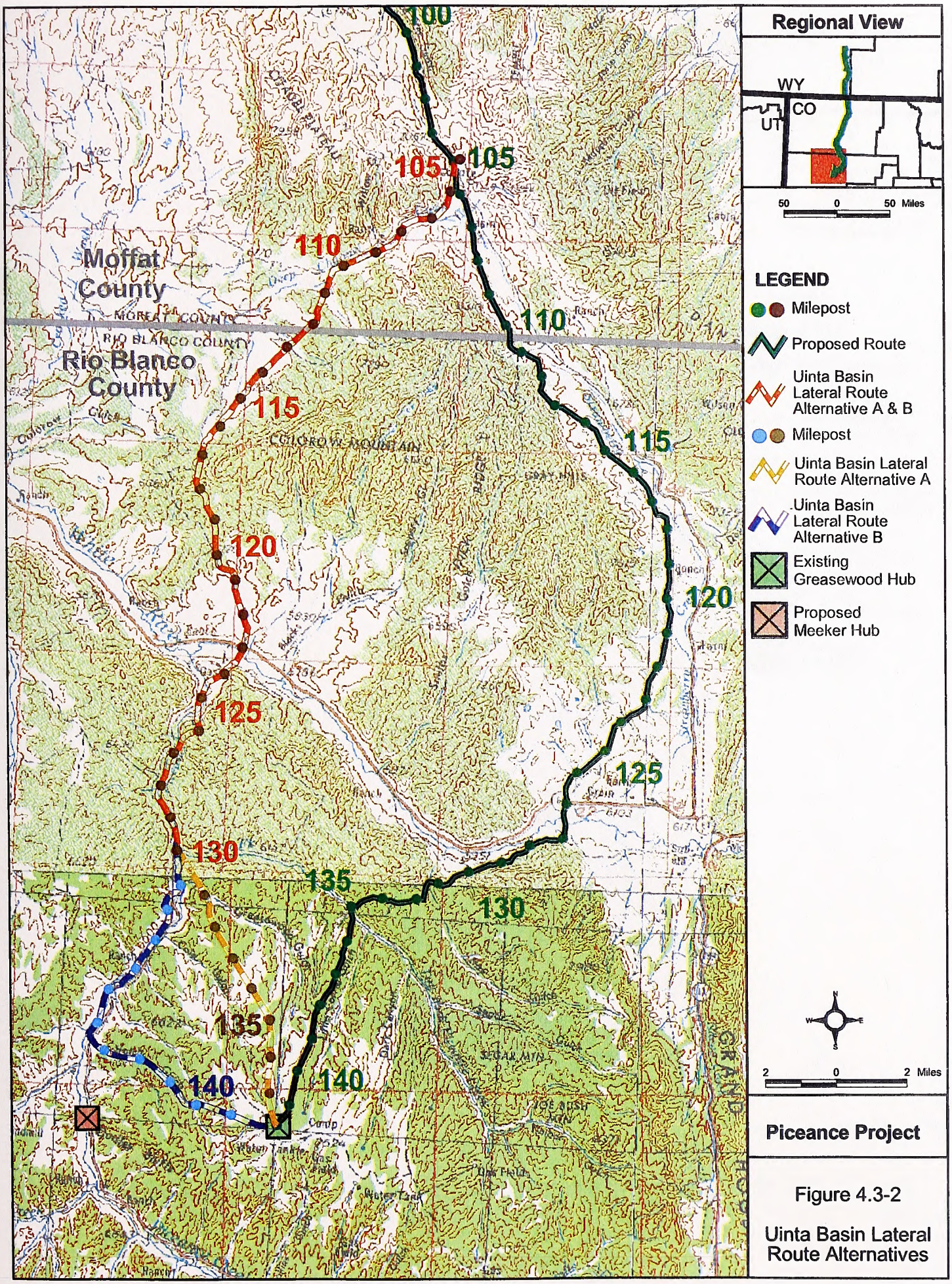


Figure 4.3-1

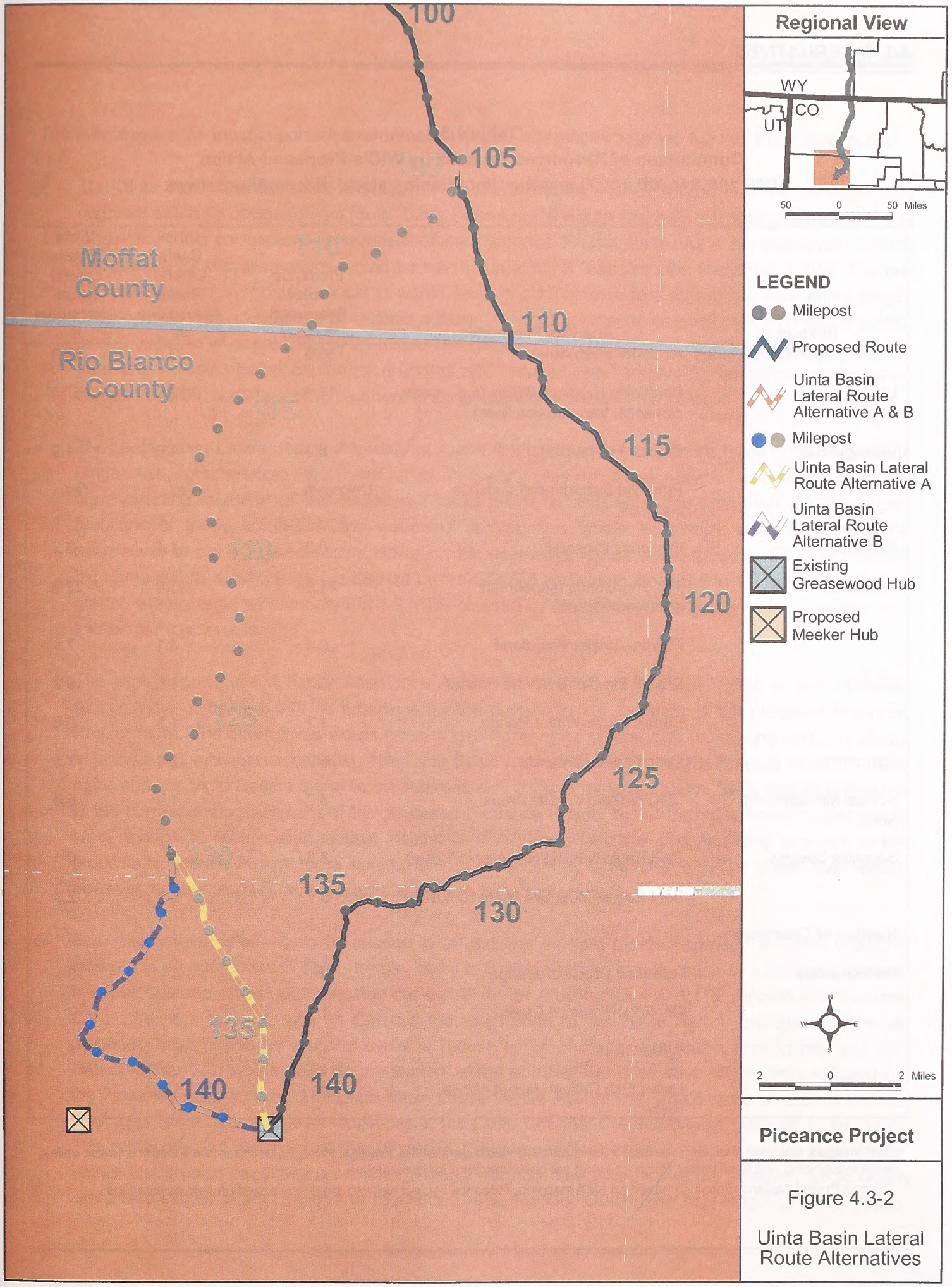
Existing Pipeline Segment Connections with Greasewood Hub



Piceance Project

Figure 4.3-2

Uinta Basin Lateral Route Alternatives



Piceance Project

Figure 4.3-2

Uinta Basin Lateral Route Alternatives

Table 4.3-1
Comparison of Resources Crossed by WIC's Proposed Action (MP 105.1 to MP 141.7) and the Uinta Basin Lateral Route Alternatives

Resource	Analysis Parameter	Piceance Project Proposed Action	Uinta Basin Lateral Route Alternative A	Uinta Basin Lateral Route Alternative B
Miles Crossed (total miles per route alternative)		36.6	33.2	37.5
Utilities	Parallel to Existing Utilities (e.g., roads, pipelines, transmission lines).	11.1	33.2	37.5[1]
Geology/ Soil	Slopes >15 percent	2.3	1.8	1.9
	Potential Subsidence/Landslide Hazards	Unknown	Yes	Yes
Wetlands	Wetlands Crossed[2]	0.3	1.4	3.2
Vegetation	Tall Shrublands (sagebrush, greasewood, oak)	21.5	23.0	22.9
	Pinyon-Juniper Woodland	9.4	8.1	7.1
Wildlife	Critical Big Game Winter Habitat	15.7	21.6	19.2
	Sage Grouse Winter Range	1.7	1.1	0.8
Agriculture	Pasture and Hayland	5.7	2.1	7.5
Special Management Areas	CDOW State Wildlife Areas	3.3	1.9	5.6
Sensitive Species	Bald Eagle Nesting Site (within 1 mile)	3.6	0	0
	Bald Eagle Roost Site (within 0.5 mile)	5.7	2.3	2.3
Number of Crossings				
Surface water	Piceance Creek Crossings	0	4	10
	Dry Fork Piceance Creek	1	0	0
	White River	1	1	1
	Listed Fish Critical Habitat (White River)	0	1	1

[1] This analysis assumes that the Piceance Project pipeline would parallel the Entrega Project pipeline in the Piceance Creek valley, while recognizing that the Entrega Project has not yet been approved for construction.

[2] Entrega Project wetland crossings based on NWI mapping; Piceance Project wetland crossings based on field delineations.

The following are the most important environmental impact differences between the two alternative routes:

- The Uinta Basin Lateral Route Alternative A is approximately 4 miles shorter than the corresponding segment of the Piceance Project route; Uinta Basin Lateral Route Alternative B is approximately 1 mile longer than the corresponding segment of the Piceance Project route. As a consequence, surface disturbance for the alternatives would be nearly equal to, or less than the Proposed Action. The two alternative pipelines would be located within existing pipeline corridors throughout their entire length; the proposed action would not be located adjacent to existing pipeline or electrical transmission utilities over a distance of approximately 25 miles. The greater degree of utility collocation for the alternatives generally indicates better construction access and reduced requirements for temporary roadways as compared to the corresponding segment of the proposed Piceance Project route.

- The Uinta Basin Lateral Route Alternatives A and B would cross 1 to 2 more miles of tall shrublands (sagebrush, greasewood, oak) and 1 to 2 fewer miles of pinyon-juniper woodlands than the corresponding segment of the Piceance Project. As a consequence, the long-term wildlife support functions of these shrubland and woodland communities would be similar when comparing the alternatives to the proposed action. However, the alternative routes would cross 3 to 6 more miles of big game critical winter range (as defined by the CDOW) and would cross 0.5 to 1.0 less miles of sage grouse winter range as compared to 1.7 miles crossed by the corresponding segment of the proposed Piceance Project route.

- The Uinta Basin Lateral Route Alternative A and B would cross Piceance Creek 4 and 10 times, respectively, compared with no crossings for the corresponding segment of the proposed Piceance Project route. The alternatives would cross 1 to 3 more miles of wetlands (consisting primarily of hay meadows and emergent wetlands). The Uinta Basin Lateral Route Alternative B would cross 2.3 more miles and the Uinta Basin Lateral Route Alternative A 1.4 less miles of CDOW SWA land as compared to the corresponding segment of the proposed Piceance Project route. Both alternative routes would cross the White River within Critical Habitat for FWS-listed fish; the corresponding segment of the proposed Piceance Project route would cross upstream of this Critical Habitat. The White River would, however, be directionally drilled, regardless of the crossing location.

- Both alternative routes would be located in an existing multiple pipeline corridor. In some locations where this corridor crosses steep terrain, there is limited width for construction of additional pipelines because of steep side slopes requiring cut-and-fill for the construction ROW (1.5 miles in the Piceance Creek drainage and 1.0 mile on Colorow Mountain north of the White River). Entrega modified its proposed Entrega Project route to avoid or reduce some of these topographic constraints, and it is expected that WIC would need do the same if either of these two alternative routes were followed by the Piceance Project route. The Uinta Basin Lateral Route Alternatives would cross an area of incised drainages, sinkholes, and local landslides in the Deep Channel Creek drainage (MP 105 to MP 115). The corresponding segment of the proposed Piceance Project proposed route would avoid these known topographic constraint areas and geologic hazards. The proposed route, however, would cross steep side slopes of the Dry Fork of Piceance Creek and Hay Gulch. The total length of steep slopes

(greater than 15 percent) is slightly greater along the proposed route than the alternatives (0.4 to 0.5 mile).

In summary, the Uinta Basin Lateral Route Alternative A appears to reduce environmental impact when compared to the corresponding segment of the proposed route because of: 1) less overall surface disturbance; 2) less disturbance of sage grouse winter range (a locally important issue); 3) less disturbance in CDOW state wildlife management areas; and 4) more miles parallel to existing pipelines. WIC, the operator of the Uinta Basin Lateral,[22] is very familiar with both the construction and operational history of this pipeline, which was constructed in 1993. In its filing to the FERC, WIC acknowledged that the Uinta Basin Lateral alignment represented the shortest distance to Wamsutter. WIC then stated that the Uinta Basin Lateral route "posed serious engineering and environmental problems through Piceance Creek and from the area north of the White River through Deception Creek Canyon. These problems included endangered fishes at the White River crossing, extreme erodible slopes and wetlands in the Piceance Creek drainage." Based on these identified concerns, WIC proposed to construct its Piceance Project along an alignment that is entirely different from the existing pipeline corridor that exits the Piceance Basin along Piceance Creek, and is consequently different from the Entrega Project, which does propose to parallel the Uinta Basin Lateral pipeline from the Piceance Creek drainage to Wamsutter.

We observe that the endangered fish issue at the White River crossing has largely been mitigated by WIC's proposal to cross the White River using HDD method, and thereby avoid channel disturbance effects. There are other pipelines that have already been constructed parallel to the Uinta Basin Lateral through the areas considered to be major topographic constraints. We note that Entrega has modified its route in these constraint areas to meet its construction requirements. Likewise, potential impacts to critical big game winter habitat could be avoided by the adhering to the proposed construction schedule.

In response to our inquiries, WIC identified areas of local geologic hazards (sinkholes, landslides) that have affected the Uinta Basin Lateral and required repairs. This information has been considered by Entrega in its proposed project design. Pipeline construction across wetlands, irrigated pastures, and streams is routinely required and best environmental practices would be applied to these crossings, consistent with WIC's Procedures and other measures included in the project's POD. Application of best management practices for soil management, stream crossings, and grading disturbed areas to maintain existing irrigation flow patterns would ensure that sediment increases in Piceance Creek (crossed multiple times by the alternatives) would be very short term, and that vegetation productivity in irrigated pasturelands could be restored in 1 to 2 years. However, we also recognize the regional importance of the Piceance Creek floodplain for livestock grazing, winter use by big game, and Piceance Creek instream aquatic resources.

We also recognize that the Entrega and Piceance Projects would be constructed in the same season and therefore, if both projects were to be constructed across the same steep terrain (e.g., Colorow Mountain), additional coordination would be required between the two projects so that construction spreads could pass each other in the same steep terrain. Because both projects propose late season construction, the separation of the two projects in the southern portion of the project may allow both projects to achieve their construction goals with the least amount of interference.

[22] The Uinta Basin Lateral is owned by CIG (an affiliate of WIC).

Because of its familiarity with the Uinta Basin Lateral and knowledge of Entrega's proposed route, WIC made the decision to propose a new route alignment that would not parallel the Uinta Basin Lateral. We understand from filing statements that WIC made this decision based on construction and operational considerations, as well as their belief that an upland route that avoided the Piceance Creek wetlands would be more environmentally acceptable. Based on our analysis, we have concluded that the specific construction and operational constraints that WIC anticipates have not been adequately explained to justify the decision to route the proposed pipeline in a new alignment between MP 105.1 and the Greasewood Hub. To further our analysis of the Uinta Basin Lateral alternatives, **we recommend that WIC, in any comments on the draft EIS or in a separate document submitted prior to the closing of the draft EIS comment period, provide an updated rationale for selecting its proposed route between MP 105.1 and the Greasewood Hub, including site-specific areas of construction and operational concerns. WIC also should include an engineering and environmental analysis of following the Uinta Basin Lateral between MP 105.1 and the Greasewood Hub. The additional engineering and environmental information should include potential route variations that would avoid conflicts with the Entrega Project where the two projects would be parallel to each other if WIC were to follow the Uinta Basin Lateral in its entirety.** This information will be incorporated into our evaluation in the final EIS.

4.3.2 Collocation Alternative

WIC proposes to construct and operate its Piceance Project along an alignment that would closely parallel the Entrega Project route over the majority of the distance between the Piceance Project origin at Wamsutter, Wyoming and the CIG Greasewood Compressor Station. The Piceance and Entrega Project routes converge at MP 105.1 and follow similar routes adjacent to the Uinta Basin Lateral to Wamsutter. Rather than constructing both pipelines as separate and discrete facilities within a broader utility corridor, we considered a collocation alternative along this segment (termed the Danforth Hills North study area).[23] The collocation alternative examined the potential surface disturbance reduction advantages that could be obtained by collocating the Entrega and Piceance Project pipelines within overlapping construction ROWs (to the extent practical, considering technical and topographical constraints).

For purposes of this analysis, "collocation" is defined as constructing the two pipeline projects in the same construction ROW, with an offset of 25 to 50 feet from each other, and from other parallel pipelines. For the purpose of this analysis, we assumed that both projects could be constructed within the same 150-foot-wide construction ROW. As proposed by both WIC and Entrega, the pipelines would typically be within 90 feet of each other and the construction ROWs would be within a 300-foot-wide corridor, except in areas where precluded by terrain and other construction constraints. Where possible, the proposed pipeline would be constructed 50 feet east of the existing Uinta Basin Lateral in a 85 foot-wide ROW and the Entrega Project pipeline would typically be constructed 40 feet west of the existing Uinta Basin Lateral in a 100-foot-wide ROW.

[23] In addition to our analysis of alternatives south of MP 105.1 (Uinta Basin Lateral Alternatives in section 4.3.1), we note that several collocation alternatives along this segment were analyzed in the Entrega Project draft EIS which are not repeated here.

The Danforth Hills North study area collocation analysis extends from Piceance Project MP 105.1 north to the Wamsutter, Wyoming, where the Piceance Project pipeline originates at the existing CIG Wamsutter Compressor Station at MP 0. North of the Danforth Hills in Moffat County, Colorado, the Entrega Project and Piceance Project pipelines are proposed for construction generally parallel to each other, but in separate ROWs adjacent to the existing CIG Uinta Basin Lateral and Kinder Morgan TransColorado pipelines.

The proposed Piceance and Entrega Projects would cross about 29 miles of important sage grouse breeding and brooding areas (as defined by the CDOW and WGFD) north of the Yampa River, where the proposed routes would be constructed in separate ROWs (see **table 4.3-2**). We received several comments during public scoping concerning sage grouse population effects from loss of sagebrush habitat, and sage grouse habitat fragmentation because of utility corridor expansion. We examined options for reducing the surface disturbance of important sage grouse breeding and brooding habitats by consolidating the two projects into a common construction ROW that was assumed to be 150 feet wide. The analysis was conducted as follows:

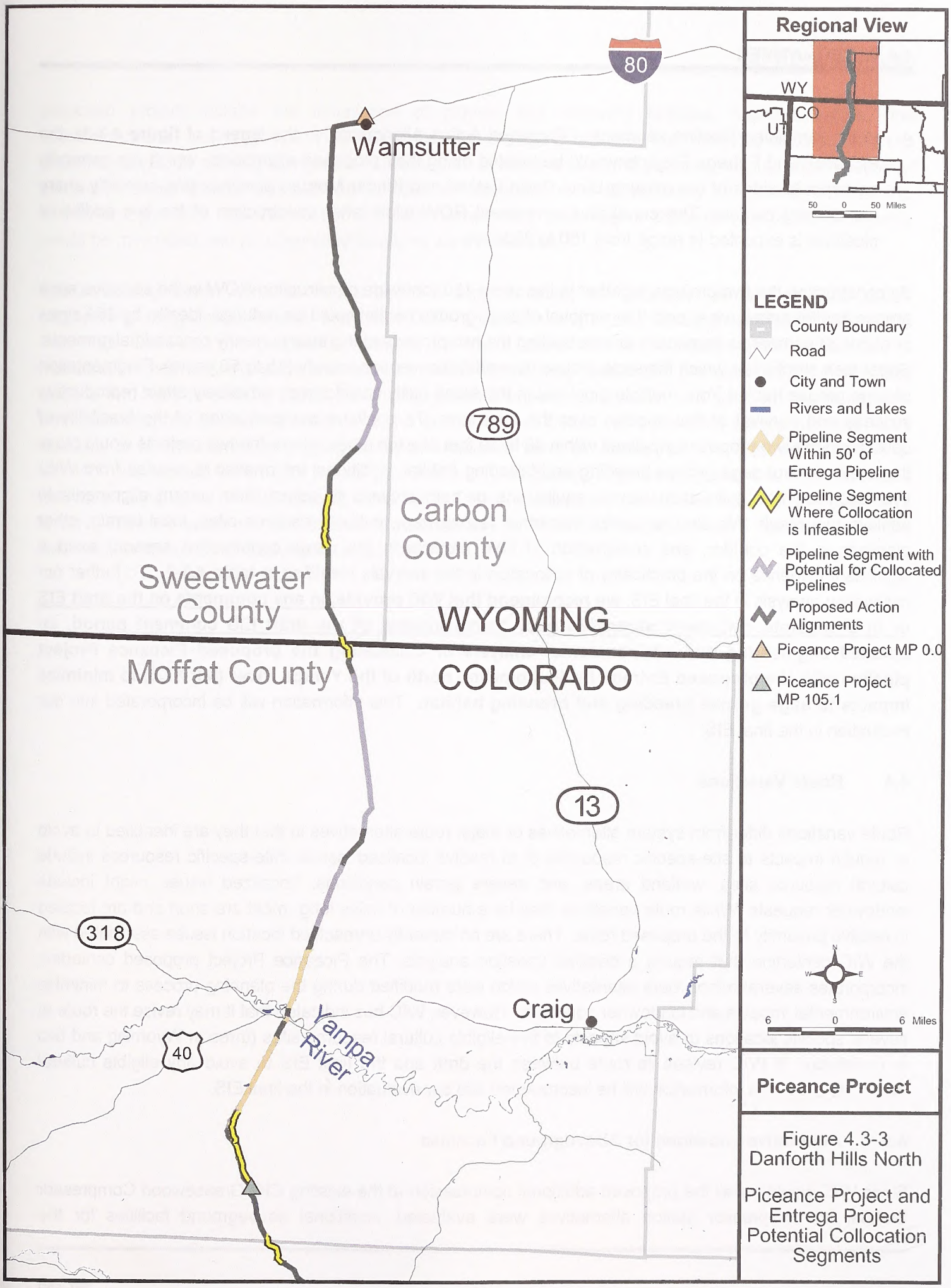
Table 4.3-2
Piceance Project Milepost Intervals Considered for Additional Piceance and Entrega Collocation to Reduce Sage Grouse Breeding and Brooding Habitat Impacts

Milepost Interval	Miles
MP 26 to MP 35	9
MP 55 to MP 69	14
MP 73 to MP 79	6
Total	**29**

1. The areas where the two pipelines already share a common construction ROW that is approximately 150 feet wide and are offset from each other and adjacent pipelines by about 50 feet (i.e., collocated) include a 9-mile segment on private and state lands south of the Yampa River and a 6-mile segment north of the Yampa River on Colorado state lands ("Pipeline Segment within 50' of Entrega Pipeline" in the legend of **figure 4.3-3**).

2. Pipeline segments where new pipelines may not be easily constructed adjacent to each other because of steep sideslopes and narrow ridgelines were identified. These segments represent about 10 miles of this overall route segment ("Pipeline Segment where Collocation is Infeasible" in the legend of **figure 4.3-3**).

3. Pipeline segments (milepost intervals) that overlap with known sage grouse breeding and brooding areas (within a 2-mile radius of historic sage grouse leks) were identified ("Pipeline Segment with Potential for Collocated Pipelines" in the legend of **figure 4.3-3**).



Piceance Project

Figure 4.3-3
Danforth Hills North

Piceance Project and Entrega Project Potential Collocation Segments

4. In the remaining pipeline segments ("Proposed Action Alignments" in the legend of **figure 4.3-3**), the Piceance and Entrega Projects would be located along their proposed alignments, which are generally on opposite sides of the existing Uinta Basin Lateral and Kinder Morgan pipelines that currently share the existing corridor. The cumulative permanent ROW width after construction of the two additional pipelines is expected to range from 150 to 200 feet.

By constructing the two projects together in the same 150-foot-wide construction ROW in the sensitive sage grouse habitat areas, we expect that removal of sage grouse habitat could be reduced, ideally, by 254 acres or about 33 percent as compared to constructing the two projects along their currently proposed alignments. Sagebrush shrubs (on which the sage grouse depends) recover very slowly (15 to 50 years). Fragmentation of sage grouse habitat from multiple pipelines in the same utility corridor may adversely affect reproductive success and survival of this species over the long term. To continue our evaluation of the feasibility of collocating the two proposed pipelines within 40 to 50 feet of each other, where the two projects would cross these 29 miles of sage grouse breeding and brooding habitat, additional information is needed from WIC. We recognize that collocation would require one or both projects to adjust their current alignments to achieve this result. We also recognize that other factors (e.g., cultural resource sites, local terrain, other pipelines in the corridor, and construction of both projects in the same construction season) exert a significant influence on the practicality of collocation in the intervals identified in **table 4.3-2**. To further our collocation analysis in the final EIS, **we recommend that WIC provide, <u>in any comments on the draft EIS or in a separate document submitted prior to the closing of the draft EIS comment period</u>, an updated engineering and environmental analysis of collocating the proposed Piceance Project pipeline with the proposed Entrega Project pipeline north of the Yampa River (MP 87.6) to minimize impacts to sage grouse breeding and brooding habitat.** This information will be incorporated into our evaluation in the final EIS.

4.4 Route Variations

Route variations differ from system alternatives or major route alternatives in that they are identified to avoid or reduce impacts to site-specific resources or to resolve localized issues. Site-specific resources include cultural resource sites, wetland areas, and severe terrain conditions. Localized issues might include landowner requests. While route variations may be a number of miles long, most are short and are located in relative proximity to the proposed route. There are no currently unresolved location issues associated with the WIC centerline that require a detailed variation analysis. The Piceance Project proposed centerline incorporates several minor route alternatives which were modified during the planning process to minimize environmental impacts and landowner concerns. However, WIC has indicated that it may revise the route at several specific locations to avoid impacts to five eligible cultural resource sites (three in Wyoming and two in Colorado). If WIC revises its route between the draft and the final EIS to avoid any eligible cultural resources sites, this information will be incorporated into our evaluation in the final EIS.

4.5 Alternative Locations for Aboveground Facilities

Since WIC would install the proposed additional compression at the existing CIG Greasewood Compressor Station, no compressor station alternatives were evaluated. Additional aboveground facilities for the

proposed project include the installation of pigging and metering facilities, mainline valves, and interconnections. As proposed, WIC would install two pigging facilities, four metering facilities, and two mainline valves, at existing compressor station sites at either end of the pipeline, limiting consideration of alternative siting options. Since these facilities are proposed at or immediately adjacent to the existing, fenced and graveled CIG Wamsutter and CIG Greasewood Compressor Stations, environmental impacts would be minimized and no alternative locations were evaluated.

The remaining seven mainline valves and one pigging facility are proposed at locations that satisfy engineering design requirements and meet DOT regulations (e.g., valve spacing requirements per CFR Part 192). Likewise, the proposed locations for these minor facilities consider ease of access for maintenance activities. As such, the mainline valves for the proposed action are currently sited along the pipeline and next to existing roads, minimizing potential impacts associated with additional access roads. With the exception of one mainline valve, no environmental issues were identified for the mainline valve locations or for the combined pigging facility and mainline valve at County Road 4. One mainline valve at MP 19.7 was located within 0.25 mile of the Overland Trail. Since the proposed valve would be collocated with an existing valve on the adjacent Uinta Basin Lateral pipeline, we considered the location of the valve to have minimal environmental impact. Consequently, no alternative locations were considered for the placement of these minor aboveground facilities.

CONCLUSIONS AND RECOMMENDATIONS

CHAPTER 5

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions of the Environmental Analysis

The conclusions and recommendations presented in this section are those of the FERC environmental staff. Our conclusions and recommendations were developed with input from the BLM as a cooperating agency. The BLM will use the final EIS in its ROD for the Piceance Project.

Review of the information provided by WIC and further developed from responses to data requests; field investigations; scoping; literature research; alternatives analysis; and contacts with federal, state, and local agencies, and individual members of the public indicates that the proposed project would result in limited adverse environmental impact during construction and operation. We conclude that if the project is constructed and operated in accordance with applicable laws and regulations, WIC's proposed mitigation, and the additional mitigation recommendations presented below, the Piceance Project would be an environmentally acceptable action. Although many factors were considered in this determination, the principal reasons are:

- 82 percent of the proposed pipeline would be located adjacent to existing pipeline, utility, and road ROWs. Where WIC's proposed pipeline would parallel existing pipelines, it would generally be installed at a 50-foot offset from the nearest pipeline centerline;
- the project would be consistent with or in conformance with federal resource management plans;
- WIC would implement a number of resource- or activity-specific plans, procedures, and agreements to protect natural resources, avoid or limit environmental impact, and promote restoration of all disturbed areas during construction and operation of the project;
- the use of the HDD method would avoid disturbances to the beds and banks of the Little Snake, White, and Yampa Rivers;
- the appropriate consultations with the FWS, the SHPOs, the BLM, other affected land management agencies, and any appropriate pre-construction compliance actions resulting from these consultations, would be completed before WIC would be allowed to begin construction in any given area; and
- an environmental inspection program would be implemented to ensure compliance with all mitigation measures, Certificate conditions, and requirements contained in the POD.

In addition, we have developed specific mitigation measures to further reduce the environmental impact that would otherwise result from construction of the project. The additional studies or field investigations which we recommend typically result in site-specific mitigation and further reduction of impact; therefore, we are recommending that these mitigation measures be attached as conditions to any Certificate issued by the Commission. These mitigation measures are presented in section 5.6. We believe that the recommended

mitigation measures would reduce potential environmental impacts from WIC's proposed action to less than significant levels.

5.2 Alternatives Considered

No Action

The No Action Alternative was considered. While the No Action Alternative would eliminate the environmental impacts identified in this draft EIS, U.S. markets would be denied access to the 350,000 Dthd (equivalent to 341 MMcfd) of natural gas that WIC proposes to transport to its system. Furthermore, natural gas development in the Piceance and neighboring basins could be hindered by a lack of future interstate pipeline transportation capacity options available to ship gas to markets. Consequently, new and existing natural gas users would need to obtain natural gas from other sources, use alternative energy sources, or use alternative fuels.

Providing natural gas from other sources would likely require the construction of additional compression on existing or planned pipelines and the construction of new pipeline or looping of existing pipelines to transport natural gas supplies currently being developed in the Piceance Basin or planned for development/production in the near future. This option is discussed below under System Alternatives. If modification of existing or approved natural gas projects are approved and constructed, each project would result in its own set of specific impacts that could be less or greater than those associated with the current proposal.

Alternative energy sources (e.g., solar, hydroelectric, geothermal, fuel cells) are not physically or commercially available in the market area to meet project objectives.

The applicable primarily to large industrial or commercial users would require natural gas customers to apply for and seek regulatory approval to use other fuels. Assuming regulatory approval to use alternative fuels could be obtained within the required time frames, it could result in increased use of less clean-burning fuels (such as coal) and a corresponding increase in air pollutant emissions.

System Alternatives

Existing natural gas pipelines that pass through, or near the Greasewood Hub were evaluated for their ability to convey the proposed Piceance Project volumes. Assuming that these pipelines continue to carry the gas volumes recently transported for the immediate future, the existing systems combined would accommodate about 76 percent of WIC's proposed volumes. Given the diameters of these existing pipelines, transport of WIC's remaining volumes would require either 1) additional looping and additional compression on multiple systems or 2) the complete looping of a single pipeline. We determined that neither of these alternatives would provide a significant environmental advantage over the proposed action. Therefore, these alternatives were eliminated from further consideration.

With modification, the proposed Entrega Project could potentially convey WIC's gas volumes to Wamsutter by interconnecting with the Piceance Project's supplier at the Greasewood Hub and adding significant

compression. While attractive in concept, this alternative would present a number of challenges. From an engineering standpoint, both companies plan on receiving natural gas from different producers and at different delivery pressures. Also, WIC and Entrega have commitments with the respective shippers to deliver volumes at different pressures at their respective interconnections. While not impossible, melding the various factors and requirements together into a common system would be extremely difficult. As a result, we eliminated the one-pipe system alternative from further consideration. We have concluded that no existing or proposed pipeline system would meet WIC's purpose and need.

Route Alternatives – Uinta Basin Lateral Alternatives

We evaluated the option of routing the Piceance Project pipeline along the existing Uinta Basin Lateral south of MP 105.1, where the proposed route follows a new greenfield route and is not generally parallel to any existing utility corridors. Along this segment, we reviewed two alternative routes that would make use of segments of both the Uinta Basin Lateral and the proposed Entrega Project ROW (Uinta Basin Lateral Alternative A and B). The Uinta Basin Lateral Alternative A would generally follow the existing Uinta Basin Lateral ROW from the Greasewood Hub (MP 141.7) to MP 105.1. The Uinta Basin Alternative B would require a linking pipeline from the Greasewood Hub to the Entrega Project route following the former American Soda pipelines (now owned by EnCana). The Uinta Basin Lateral Alternative B would then follow the Entrega Project route to its intersection with the Uinta Basin Lateral. From this intersection the alternative would follow the Uinta Basin Lateral route, which also is followed by the proposed Entrega Project, northward to MP 105.1.[24] These alternatives were evaluated to:

- reduce the amount of "greenfield" disturbance associated with the proposed action;
- avoid or minimize impacts to upland vegetation that have long recovery periods (e.g., tall shrublands, and pinyon–juniper woodland that require 10 to 50+ years for recovery); and
- reduce overall impacts to wildlife habitat.

After conducting the impact analysis, we are seeking further information from WIC to determine whether these routes are feasible and would substantially reduce environmental impact. Our analysis identified different kinds of environmental impacts when comparing the proposed and the alternative pipeline routes. Overall, the Uinta Basin Lateral Route Alternative A is approximately 4 miles shorter than the proposed route, while the Uinta Basin Lateral Route Alternative B is approximately 1 mile longer than the proposed route. However, the alternative routes would reduce the amount of greenfield disturbance since they would be located parallel to existing utilities for their entire route. In contrast, the corresponding segment of the proposed route would not be collocated with any existing utilities for 27 miles of its length. By following the proposed route, a smaller number of stream crossings and fewer wetland and pasture disturbance would result, but more shrubland and woodland wildlife habitat would be cleared. Shrubland and woodland recovery times would be long-term (10 to 50+ years). Compared to the proposed route, the alternative

[24] Entrega's currently proposed alignment generally follows the Uinta Basin Lateral between the proposed Meeker Hub and the area where the two proposed project routes intersect near the Piceance Project MP 105.1.

routes would cross more miles of big game critical winter range (as defined by the CDOW), but fewer miles of sensitive species habitat, particularly sage grouse and bald eagle. Finally, the proposed route would avoid or minimize engineering issues (i.e., an area of pipeline congestion combined with steep slopes, rock outcrops, and a ravine associated with the Colorow Mountain crossing [Entrega Project MP 19.5 to MP 20.6], and an area of soil instability and geologic hazards along the Deep Channel Creek drainage [Entrega Project MP 25.5 to MP 28]).

Route Alternatives - Collocation Alternative

Because the Piceance Project would closely parallel the Entrega Project route over the majority of the distance between Wamsutter, Wyoming, and MP 105.1, we evaluated a collocation alternative. The purpose of the collocation alternative was to determine if there was a potential reduction in surface disturbance that could be obtained by collocating the Entrega and Piceance Project pipelines within overlapping construction ROWs, where practical, rather than constructing both pipelines as separate and discrete facilities within a broader utility corridor. For the purpose of our analysis, we assumed that where the pipes could be collocated, both projects could be constructed within the same 150-foot-wide construction ROW.

The collocation analysis was conducted within a study area (Danforth Hills North) which extends from Piceance Project MP 105.1 north to the Wamsutter, Wyoming, where the Piceance Project pipeline originates at the existing CIG Wamsutter Compressor Station. Within the study area both the Piceance and the Entrega Project routes are generally parallel to each other, but the construction ROWs rarely overlap. North of the Danforth Hills in Moffat County, Colorado, the proposed Entrega and Piceance Project pipelines would be constructed in separate ROWs adjacent to the existing Uinta Basin Lateral and Kinder Morgan pipelines from Piceance Project MP 0 to MP 105.1. We examined options for reducing the surface disturbance of important sage grouse breeding and brooding habitats by consolidating the two projects into a common construction ROW that was assumed to be 150 feet wide, where collocation was practical.

By constructing the two projects together in the same 150-foot-wide construction ROW in these sensitive habitat areas, we expect that removal of sage grouse habitat could be reduced up to 254 acres (about 33 percent) as compared to constructing the two projects along their currently proposed alignments. Sagebrush shrubs on which the sage grouse depends recover very slowly (15 to 50 years) and fragmentation of sage grouse habitat from multiple pipelines in the same utility corridor may adversely affect reproductive success and survival of this species over the long term. We will continue to evaluate the feasibility of collocating the two proposed pipelines within 40 to 50 feet of each other where the two projects would cross these 29 miles of sage grouse breeding and brooding habitat, recognizing that there may be both practical and technical difficulties. The results of our analysis will be presented in the final EIS.

In summary, we are seeking additional information from WIC regarding these alternatives (Uinta Basin Lateral and collocation alternatives) before completing our alternative analysis to determine if they provide a environmental advantage over the proposed route.

Route Variations

Route variations differ from system alternatives or major route alternatives in that they are identified to avoid or reduce impact on site-specific resources or to resolve localized issues (e.g., landowner requests, cultural resource sites, wetland areas, and severe terrain conditions). During planning and the Pre-Filing process, the Piceance Project proposed centerline was modified in several places to address site-specific resource issues. With the exception of several cultural resource site concerns along the proposed route, there are no currently unresolved location issues associated with the Piceance Project centerline that require a detailed variation analysis. Consequently, the draft EIS does not evaluate any routing variations. WIC has indicated that it may revise the route at several specific locations to avoid impact on five eligible cultural resource sites (three in Wyoming and two in Colorado). If WIC revises its route between the draft and the final EIS to avoid any eligible cultural resources sites, this information will be incorporated into our evaluation in the final EIS.

Aboveground Facilities

Since both the CIG Wamsutter and CIG Greasewood Compressor Stations are existing facilities, no alternative locations were evaluated. No environmental issues were identified for the County Road 4 Pigging Facility and MLV #4 site. Consequently, no alternative sites for aboveground facilities were analyzed.

5.3 Significant Unavoidable Impacts

The project would result in limited adverse environmental impact. Effects on all environmental resources were evaluated to determine any significant impact that would remain after application of the mitigation proposed by WIC. We then considered practical, appropriate, and reasonable measures which would further reduce potential project-related impacts. As a result, we developed additional mitigation which we are recommending be included as specific conditions to any Certificate issued by the Commission. Our analysis indicates that with the application of WIC's mitigation and implementation of our recommendations below, the proposal would result in no significant impact that is unavoidable. Further, we believe that all environmental impacts would be reduced to less than significant levels if the proposed and recommended mitigation is fully implemented.

5.4 Irreversible/Irretrievable Commitment of Resources; Short- and Long-Term Uses of the Environment

The major nonrenewable resources that would be consumed by the proposed project are fossil fuels used to power construction vehicles and, over the life of the project, fossil fuel and electricity to power the pipeline itself (the proposed compressor would be natural gas-powered). Theoretically, the pipeline components could be reclaimed at the end of the pipeline's operational life. However, there would be a number of irretrievable resources committed to the proposal if the necessary authorizations are granted. The primary resources irretrievably lost would include soils (resulting from water and wind erosion in disturbed areas); water (used for dust control); crop/rangeland production (lost or reduced for one season or more); land use (aboveground facilities would replace rangeland and agricultural land for the life of the project); and wildlife

habitat (temporary to long-term loss). The loss of cultural and paleontological resources also would be irretrievable, if allowed to occur.

As discussed in section 3.11, the proposed project has been designed to meet or exceed all safety requirements, and the potential for irreversible damage to the environment during operation is slight.

The proposed project would transport significant volumes of natural gas to interconnections at the Wamsutter Hub where the gas could be distributed to customers in the western and central U.S. Its operation would be consistent with federal policies encouraging competitive natural gas transportation services. For these reasons, the limited irreversible and irretrievable resource commitments are acceptable.

5.5 Federal Energy Regulatory Commission Staff Recommended Mitigation

If the Federal Energy Regulatory Commission (FERC or Commission) approves the Piceance Basin Expansion Project (Piceance Project), we recommend that the following measures be included as specific conditions of the Certificate of Public Convenience and Necessity (Certificate). We believe that these measures would further mitigate the environmental impacts associated with the construction and operation of the proposed project.

1. Wyoming Interstate Company, Ltd. (WIC) shall follow the construction procedures and mitigation measures described in its application, supplemental filings (including responses to staff data requests), and as identified in the draft Environmental Impact Statement (EIS), unless modified by the Commission Order. WIC must:

    a. request any modification to these procedures, measures, or conditions in a filing with the Secretary of the Commission (Secretary);

    b. justify each modification relative to site-specific conditions;

    c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and

    d. receive approval in writing from the Director of the Office of Energy Projects (Director of OEP) **before using that modification.**

2. The Director of OEP has delegated authority to take what ever steps are necessary to ensure the protection of all environmental resources during construction and operation of the project. This authority shall allow:

    a. the modification of conditions of this Order; and

    b. the design and implementation of any additional measures deemed necessary (including stop-work authority) to assure continued compliance with the intent of the environmental

conditions as well as the avoidance or mitigation of adverse environmental impact resulting from project construction and operation.

3. **Prior to any construction**, WIC shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, environmental inspectors (EIs), and contractor personnel will be informed of the EI's authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs before becoming involved with construction and restoration activities.

4. The authorized facility locations shall be as shown in the draft EIS, as supplemented by filed alignment sheets. **As soon as they are available and before the start of construction**, WIC shall file with the Secretary any revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved by this Order. All requests for modifications of environmental conditions of this Order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.

   WIC's exercise of eminent domain authority granted under Natural Gas Act (NGA) Section 7(h) in any condemnation proceedings related to the Order must be consistent with these authorized facilities and locations. WIC's right of eminent domain granted under NGA Section 7(h) does not authorize it to increase the size of its natural gas pipeline to accommodate future needs or to acquire a right-of-way (ROW) for a pipeline to transport a commodity other than natural gas.

5. WIC shall file with the Secretary detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, staging areas, pipe storage yards, new access roads, and other areas that would be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species would be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP **before construction in or near that area.**

   This requirement does not apply to route variations required herein, additional areas allowed by WIC's *Upland Erosion Control, Revegetation, and Maintenance Plan* (WIC's Plan), or minor field realignments per landowner needs and requirements that do not affect other landowners or sensitive environmental areas such as wetlands.

   Examples of alterations requiring approval include all route realignments and facility location changes resulting from:

   a. implementation of cultural resources mitigation measures;

   b. implementation of endangered, threatened, or special concern species mitigation measures;

c. recommendations by state regulatory authorities; and

d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.

6. **Within 60 days of the acceptance of this Certificate and before construction** begins, WIC shall file an initial Implementation Plan with the Secretary for the review and written approval of the Director of OEP describing how WIC will implement the mitigation measures required by this Order. WIC must file revisions to the plan as schedules change. The plan shall identify:

a. how WIC will incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;

b. the number of EIs assigned per spread and a description of how WIC will ensure that sufficient personnel are available to implement the environmental mitigation;

c. company personnel, including EIs and contractors, who will receive copies of the appropriate material;

d. the training and instructions WIC will give to all personnel involved with construction and restoration (initial and refresher training as the project progresses and personnel change), with the opportunity for OEP staff to participate in the training session(s);

e. the company personnel (if known) and specific portion of WIC 's organization having responsibility for compliance;

f. the procedures (including use of contract penalties) WIC will follow if noncompliance occurs; and

g. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for the:

i. completion of all required surveys and reports;
ii. mitigation training of onsite personnel;
iii. start of construction; and
iv. start and completion of restoration.

7. WIC shall employ a team of EIs (i.e., three or more) on <u>each</u> construction spread. The EIs shall be:

a. responsible for monitoring and ensuring compliance with all mitigation measures required by this Order and other grants, permits, certificates, or other authorizing documents;

b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract and any other authorizing document;

c. empowered to order correction of acts that violate the environmental conditions of this Order, and any other authorizing document;

d. employed in a full-time position, separate from all other activity inspectors;

e. responsible for documenting compliance with the environmental conditions of this Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and

f. responsible for maintaining status reports. (p. 2-32)[25]

8. WIC shall file updated status reports prepared by the head EI with the Secretary on a weekly basis **until all construction-related activities, including restoration activities, are complete**. On request, these status reports also will be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:

a. the current construction status of each spread, work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally sensitive areas;

b. a listing of all problems encountered and each instance of noncompliance observed by the EIs during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);

c. a description of corrective actions implemented in response to all instances of noncompliance, and their cost;

d. the effectiveness of all corrective actions implemented;

e. a description of any landowner/resident complaints that may relate to compliance with the requirements of the Commission Order, and the measures taken to satisfy their concerns; and

f. copies of any correspondence received by WIC from other federal, state, or local permitting agencies concerning instances of noncompliance, and WIC's response.

9. WIC must receive written authorization from the Director of OEP **before commencing service** from the project. Such authorization will only be granted following a determination that rehabilitation/ restoration of the ROW and other areas of project-related disturbance are proceeding satisfactorily.

[25] The page numbers in parenthesis at the end of a recommended measure corresponds to the page or pages on which the measure and related resource impact analysis appears in the draft EIS.

10. **Within 30 days of placing the certificated facilities in service**, WIC shall file an affirmative statement with the Secretary, certified by a senior company official:

    a. that the facilities have been constructed in compliance with all applicable conditions, and that continuing activities will be consistent with all applicable conditions; or

    b. identifying which of the Certificate conditions WIC has complied with or will comply with. This statement also shall identify any areas affected by the project where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.

11. WIC shall develop a Winter Construction Plan to address construction and reclamation procedures as well as specific mitigation measures. WIC shall file this plan with the Secretary and the BLM prior to the closing of the draft EIS comment period. The plan shall include the following information:

    a. Big Game Habitat: Provide a winter construction schedule based on the assumption that no timing variance is permitted by either the Bureau of Land Management (BLM) or Colorado Division of Wildlife (CDOW). Note: in critical or crucial winter range and parturition areas, construction during normal closure periods must be approved by appropriate state and federal land-management agencies in writing.

    b. Soil Management: Describe winter soil salvage procedures addressing issues such as the mixing of topsoil and snow, location and amount of spoil/snow, wetting of topsoil), snow management techniques (for spoil, within the trench, and along the ROW), trenchline soil compaction and subsidence issues and mitigation, rutting issues, and re-application of topsoil along the ROW.

    c. Erosion Control: Describe the erosion control measures, such as mulching and temporary seeding, that would be used to stabilize the ROW on a temporary basis during the winter after the pipeline was installed.

    d. Access Roads: Discuss access roads that would be used during winter construction and potential road maintenance associated with snow drifts and melting snow.

    e. Cultural Resources: Describe treatment of cultural resources discovered under winter conditions. (p. 2-26, 2-30)

12. If excessive wind or water erosion occurs **during restoration or operations** (as indicated by poor revegetation success, noticeable deflation, sheet or rill erosion, and/or downgradient soil deposition), WIC shall renew site restoration treatments (including soil stabilization and revegetation) and install and monitor erosion minimization treatments (e.g., crimped mulch, water and sediment barriers, snow fences) to ensure soil stabilization as part of WIC's ongoing maintenance program. Such efforts shall be conducted in coordination with landowners or appropriate federal or state land management agencies. (p. 3-14)

13. To protect against topsoil loss, WIC's EIs shall monitor for potential topsoil degradation in areas where it is not stripped from the working side of the construction ROW. If topsoil in these areas becomes powdered or pulverized to a depth of 4 inches and is being mixed with subsoil, or if wind is moving topsoil off the ROW regardless of dust control measures applied, then WIC shall strip topsoil from both the ditch line and the working side of the ROW and replace topsoil in the impacted areas. (p. 3-15)

14. In order to control and prevent the spread of noxious and invasive weeds, WIC shall revise its Noxious and Invasive Weed Plan (Weed Plan) in consultation with the appropriate BLM field office (FO) to include the following additional elements:

    a. invasive weeds listed by the appropriate BLM FO(s);

    b. a site-specific plan for each location where noxious or invasive weeds are present that:

        i. describes options for pretreatment (including the month(s) of the year when pretreatment would be effective);

        ii. identifies who was consulted regarding possible pretreatment options;

        iii. includes whether the landowner/administrator has approved of the pretreatment;

    c. the replacement of the compressed air wash stations proposed for removal of noxious weeds from construction equipment with water wash stations that are more effective in removing weeds and their seeds;

        i. review and revise, as necessary, the location of all equipment wash stations (by milepost [MP]) in consultation with the BLM;

        ii. for each wash station, plans should identify the source(s) of the wash water, how effluent from the wash stations would be monitored/treated to prevent seed releases, and specific plans for station decommissioning;

        iii. include a scaled plot plan of a typical wash station in the Weed Plan, identifying all features;

        iv. locate wash stations at least 0.25 mile from all perennial streams and monitor wash station locations for weeds after construction as part of the ROW monitoring and reclamation efforts; and

        v. include plans for an intermediate wash station south of the Yampa River to minimize the spread of whitetop (*Cardaria* species) north of the river resulting from construction traffic through the heavy infestations between the Yampa River and the CIG Greasewood Compressor Station.

Prior to construction, WIC shall file the revised Weed Plan with the Secretary for review and written approval of the Director of the OEP. (p. 3-21, 3-22)

15. WIC shall develop and implement an environmental complaint resolution procedure that remains active for at least 3 years following the completion of construction. The procedure shall provide landowners with clear and simple directions for identifying and resolving their environmental mitigation problems/concerns during construction of the project and restoration of the ROW. **Prior to construction**, WIC shall mail the complaint resolution procedure to each landowner whose property would be crossed by the project.

    a. In its letter to affected landowners, WIC shall:

        i. provide a local contact and telephone number that the landowners shall call first with their concerns; the letter shall indicate how soon a landowner should expect a response;

        ii. instruct the landowner that, if they are not satisfied with the response, they should call WIC's Hotline; the letter shall indicate how soon to expect a response; and

        iii. instruct the landowner that if they were still not satisfied with the response from WIC's Hotline, they should contact the Commission's Enforcement Hotline at (888) 889-8030 or at hotline@ferc.gov.

    b. In addition, WIC shall include a table in its weekly status report containing the following information for each problem/concern:

        i. the identity of the caller and the date of the call;

        ii. the identification number from the certificated alignment sheet(s) of the affected property and approximate location by MP;

        iii. a description of the concern/problem; and

        iv. an explanation of how and when the problem was resolved, will be resolved, or why it has not been resolved. (p. 3-22)

16. In order to minimize potential impacts from blasting and to adequately assess groundwater resource conditions **before and after blasting**, WIC shall:

    a. integrate provisions from the filed environmental report into the Blasting Plan (e.g., before-and-after inspections at any water supply wells and springs within 150 feet of construction areas, and subsequent repairs or compensation, if necessary), so that one inclusive reference is available for the construction and inspection staff;

    b. monitor ground vibrations at the nearest structure, spring, or water supply well within 150 feet of construction areas during blasting activities;

c. provide an alternative source of water (if water supply wells/systems were damaged during construction) until the well or system was repaired/replaced or the landowner was fairly compensated for the damage;

d. coordinate blasting in the vicinity of existing pipelines with the other pipeline operator(s) and follow operator-specific procedures as necessary; and

e. file a report with the Secretary **within 30 days of placing the pipeline facilities in service** identifying all water supply wells/systems damaged by construction and how they were repaired, including a discussion of any complaints concerning the well yield or water quality and how each problem was resolved. (p. 3-26, 3-27)

17. WIC shall prepare an Incised Bank Stabilization Plan to apply at major river crossings and at crossings of deeply incised drainages to ensure that the drainage channel and banks were stabilized to prevent erosion and the possibility of exposing the pipeline. This plan would provide specific construction procedures that would be implemented to stabilize streambanks (e.g., gabion baskets). WIC shall develop the plan in consultation with the BLM, and file the plan with the Secretary for review and written approval of the Director of OEP. (p. 3-30)

18. <u>In any comments on the draft EIS or in a separate document submitted prior to the closing of the draft EIS comment period</u>, WIC shall file with the Secretary for review and written approval, estimates of the volume and source of water needed for completing the proposed horizontal directional drill (HDD) crossings at the Little Snake, White, and Yampa Rivers and a Horizontal Directional Drilling Inadvertent Release Control Plan (HDD Plan). The HDD Plan shall identify procedures to minimize water quality (including sedimentation) impacts of any potential frac-out, including procedures for detection and monitoring, response equipment, notification procedures, and corrective actions. (p. 3-31)

19. <u>In any comments on the draft EIS or in a separate document submitted prior to the closing of the draft EIS comment period</u>, WIC shall file with the Secretary site-specific construction plans that clearly justifies any extra workspace that would be located less than 50 feet from the water's edge. (p. 3-31, 3-32)

20. In order to protect Spring Creek and Deception Creek from potential spills, WIC shall locate areas designated for refueling, parking or maintenance, or storage of fuels, lubricants, or hazardous materials a minimum of 100 feet from the upper edge (crest) of the stream terraces along Spring Creek and Deception Creek. (p. 3-32)

21. To further minimize the impacts of hydrostatic testing on aquatic biota beyond the mitigation described in WIC's *Wetland and Waterbody Construction and Mitigation Procedures* (WIC's Procedures) and Hydrostatic Test Plan, WIC shall file (**prior to construction**) with the Secretary for review and approval a modified Hydrostatic Test Plan to include the following:

a. identify the precise location (on recent aerial photographs not to exceed a scale of 1:24,000) of proposed withdrawal and discharge locations;

b. clarify that all discharge locations will avoid all known cultural resource sites;

c. justify the rate of water withdrawal if it exceeds 5 percent of the surface flow at the time of withdrawal; and

d. install water intake regulation devices to regulate the rate of water withdrawal and to minimize the chance of impingement and entrainment of larval life-stages of native fish. (p. 3-33, 3-34)

22. WIC shall consult the appropriate state and federal fisheries agencies and the Colorado State Engineer to determine suitable flow conditions and locations for hydrostatic test water withdrawals and discharge locations. WIC shall incorporate the outcome of this consultation in its revised Hydrostatic Test Plan. (p. 3-34)

23. WIC shall include in its revised Hydrostatic Test Plan its rationale for discharging the hydrostatic test water to upland areas, rather than into the waterbody where the water was withdrawn. If, after review, FERC determines that it would be more appropriate to return the water to the original waterbody, WIC shall submit procedures to minimize the potential impacts from water discharge that could result in increased erosion of the streambanks and stream bottom scour. (p. 3-70)

24. To reduce potential cumulative dewatering effects on the Little Snake River during the low flow fall season, WIC shall coordinate their hydrostatic testing and dust control withdrawals with Entrega such that no Piceance and Entrega Project water withdrawals occur simultaneously from the Little Snake River. (p. 3-125)

25. In order to ensure suitable withdrawals and water quality for plant growth, WIC shall file with the Secretary for review and written approval of the Director of the OEP data to characterize the quality of potential dust control water sources and any tackifiers prior to their use. All water or water/chemical mixes applied to areas to be revegetated must meet state or federal water quality standards for irrigated agricultural uses. (p. 3-34, 3-35)

26. WIC shall file with the Secretary its project-specific Wetland Restoration Plan, indicating by MP how wetlands disturbed by project activities will be restored to pre-construction conditions, for review and written approval by the Director of OEP **prior to commencing service**. WIC shall include the comments of the land management and state agencies with whom it consulted during plan development. (p. 3-36)

27. To minimize potential impacts to wildlife, horses, and livestock, WIC shall place earthen trench plugs, with ramps on either side, at 1-mile intervals along the trench as well as at well-defined livestock and wildlife trails intersected by the trench. WIC also shall leave breaks in the strung and welded pipe, topsoil, and spoil piles at locations that correspond to the earthen trench plugs to allow movement of wildlife and livestock across the construction ROW. WIC shall consult with the BLM regarding specific placement of trench plugs and ramps on lands managed by the BLM. (p. 3-50)

28. In order to minimize potential construction impacts to smaller, less mobile species, WIC shall cap uncovered pipe that has been placed in the trench at the end of each workday to prevent animals from entering the pipe. In addition, EIs or biological monitors shall remove animals from open trenches **during construction**. (p. 3-53)

29. Should construction extend into the raptor nesting season, WIC shall conduct additional pre-construction raptor nest surveys in accordance with agency (BLM, state wildlife agency) approved protocols. Results of the raptor nest surveys shall be reported to the appropriate BLM FO and state wildlife agency. Further, WIC shall report the results of any pertinent communications it has with the BLM, U.S. Fish and Wildlife Service (FWS), CDOW, and Wyoming Game and Fish Department (WGFD) with the Secretary and shall not begin construction **until** the Commission staff has reviewed the information, completed any necessary consultations with the FWS, and the Director of OEP notifies WIC in writing that construction or use of mitigation may begin. (p. 3-55)

30. **Prior to conducting surveys** for the Dudley Bluffs bladderpod and Dudley Bluffs twinpod (also known as Piceance twinpod), WIC shall coordinate with the FWS to ensure proper survey timing and protocols. WIC shall, **prior to the start of construction**, file the following information with the Secretary:

    a. name(s) and qualifications of the person(s) conducting the survey;

    b. method(s) used to conduct the survey;

    c. date(s) of the survey;

    d. area surveyed (include the mileposts surveyed); and

    e. results of the surveys, to indicate species presence or absence. (p. 3-57)

31. If a federally listed plant species was found during preconstruction surveys, WIC shall notify the Commission staff and the FWS **before commencing any project construction** activity in order for us to complete our Endangered Species Act (ESA) Section 7 obligations. This notification shall contain WIC's evaluation of whether or not the plant(s) could be avoided by fencing, reroute, or by the use of a horizontal bore. Further, WIC shall not begin construction activities until:

    a. the staff receives comments from the FWS regarding the proposed action;

    b. the staff completes formal consultation with the FWS, if required; and

    c. WIC has received written notification from the Director of OEP that construction or use of mitigation may begin. (p. 3-58)

32. If prairie dog survey results indicate the need for protocol ferret surveys WIC shall file the following information with the Secretary:

a. name(s) and qualifications of the person(s) conducting the survey;

b. method(s) used to conduct the survey;

c. date(s) of the survey;

d. area surveyed (include the mileposts surveyed); and

e. results of the surveys, to indicate species presence or absence.

Further, WIC shall not begin construction activities **until**:

a. the staff receives comments from the FWS regarding the proposed action;

b. the staff completes formal consultation with the FWS, if required; and

c. WIC has received written notification from the Director of OEP that construction or use of mitigation may begin. (p. 3-60)

33. In order to protect eagle nests, WIC shall adhere to a 1-mile spatial buffer around previously identified active bald eagle nests (MP 53.1 and MP 128.5) for construction that occurs **between February 15 and August 15**. (p. 3-61, 3-62)

34. In the event that WIC encounters a previously unidentified active bald eagle nest within 1 mile of the construction ROW, WIC shall concurrently notify the Commission staff and the FWS, and file such information with the Secretary. WIC shall not continue with construction within 1 mile of the nest **until** the staff has reviewed the information, completed any necessary consultation with the FWS, and the Director of OEP notifies WIC in writing that construction may proceed or use of mitigation may begin. (p. 3-62)

35. If daily monitoring indicates that roosting eagles within 1 mile of the construction area are being agitated, WIC shall report the results of any pertinent communications it has with the FWS, local BLM offices, and CDOW with the Secretary and shall not begin construction **until** the Commission staff has reviewed the information, completed any necessary consultations with the FWS, and the Director of OEP notifies WIC in writing that construction or use of mitigation may begin. (p. 3-62)

36. In order to minimize impact on bald eagle roosting habitat, WIC shall identify any potential bald eagle roosting tree that WIC believes could not be avoided and describe the measures WIC considered before determining that removal would be necessary. WIC shall not begin construction activities **until**:

a. the staff receives comments from the FWS regarding the proposed action;

b. the staff completes formal consultation with the FWS, if required; and

c. WIC has received written notification from the Director of OEP that construction or use of mitigation may begin. (p. 3-62, 3-63)

37. To minimize potential impacts to the burrowing owl, BLM requirements established for protecting burrowing owls shall be implemented for the entire Piceance Project, regardless of land ownership. (p. 3-65)

38. To minimize potential impacts to the sage grouse, WIC shall ensure that if low-intensity preconstruction (e.g., surveying and staking) work is necessary within 2 miles of known sage grouse leks **between March 1 and June 30**, activities shall occur only between 9:00 a.m. and 4:00 p.m. (p. 3-66)

39. In order to minimize potential impacts to mountain plover from pipeline construction activities, WIC shall not construct in suitable mountain plover habitat during the breeding season **between April 10 and July 10 until** WIC has:

a. conducted agency-approved surveys for the mountain plover;

b. developed a mitigation plan, including agency-approved buffer zones or other protection measures for nests and chicks; and

c. filed this information with the Secretary for review and written approval of the Director of OEP before construction or use of mitigation may begin. (p. 3-67)

40. If the Great Basin spadefoot, northern leopard frog, and midget faded rattlesnake are observed **during construction**, WIC shall install exclusion fencing to a depth of 6 inches into the ground in the area of suitable habitat containing the population to keep individuals from entering the construction ROW. (p. 3-68)

41. If WIC is not able to complete an HDD crossing at the Yampa and White Rivers, WIC shall not proceed with a non-HDD crossing of the Yampa or White Rivers **until** it has filed a site-specific alternate crossing plan with the Secretary for review. This plan shall identify measures that would minimize instream impacts and avoid or minimize potential impacts on federally listed fishes. WIC shall not begin a non-HDD crossing of the Yampa or White Rivers **until** the FERC completes any necessary ESA Section 7 consultation with the FWS, and the Director of OEP notifies WIC in writing that it may proceed with the alternate river crossing method. (p. 3-70, 3-71)

42. WIC shall defer construction and use of facilities and staging, storage, and temporary work areas, and access roads **until**:

a. WIC files with the Secretary all remaining cultural resource inventory and evaluation reports, and necessary avoidance or treatment plans;

b. WIC files with the Secretary the BLM's and the Colorado and Wyoming State Historic Preservation Offices' (SHPOs') comments, as applicable, on all reports and plans; and

c. the Director of OEP reviews and approves all reports and plans and notifies WIC in writing that it may proceed.

All material filed with the Commission containing **location, character, and ownership** information about cultural resources must have the cover and any relevant pages therein clearly labeled in bold lettering: "**CONTAINS PRIVILEGED INFORMATION – DO NOT RELEASE.**" (p. 3-86)

43. In any comments on the draft EIS or in a separate document submitted prior to the closing of the draft EIS comment period, WIC also shall explain how it or its contractor would accommodate the project construction workforce if all temporary housing and private camping areas are occupied in the primary communities (Meeker, Craig, Wamsutter) near the work area, as well as developed campgrounds on public lands. (p. 3-93)

44. To ensure that nearby noise-sensitive areas are protected from noise impacts resulting from the installation and operation of additional compression at the existing CIG Greasewood Compressor Station, WIC shall file a noise survey with the Secretary **no later than 60 days after placing the authorized unit(s) at the CIG Greasewood Compressor Station in service**. If the noise attributable to the operation of the compressor station at full load exceeds an day-night equivalent sound level (L_{dn}) of 55 decibels on the A-weighted scale (dBA) at any nearby noise-sensitive area, WIC shall install additional noise controls to meet that level **within 1 year of the in-service date**. WIC shall confirm compliance with the L_{dn} of 55 dBA requirement by filing a second noise survey with the Secretary **no later than 60 days after WIC installs the additional noise controls**. (p. 3-110)

45. To reduce cumulative impact and new surface disturbance on sagebrush habitat, WIC shall reduce the Piceance Project pipeline offset to 35 feet wherever WIC proposes to construct its pipeline adjacent to the Uinta Basin Lateral, the Entrega Project pipeline, or other existing pipelines between MP 0 and MP 98. In any comments on the draft EIS or in a separate document submitted prior to the closing of the draft EIS comment period, WIC shall provide site-specific justification for areas where such an offset reduction (50 feet to 35 feet) is not technically feasible. (p. 3-129)

46. In any comments on the draft EIS or in a separate document submitted prior to the closing of the draft EIS comment period, WIC shall provide an updated rationale for selecting its proposed route between MP 105.1 and the Greasewood Hub, including site-specific areas of construction and operational concerns. WIC also shall include an engineering and environmental analysis of following (i.e., closely paralleling) the Uinta Basin Lateral between MP 105.1 and the Greasewood Hub. The additional engineering and environmental information shall include potential route variations that would avoid conflicts with the Entrega Project where the two projects would be parallel to each other if WIC were to follow the Uinta Basin Lateral in its entirety. (p. 4-13)

47. In any comments on the draft EIS or in a separate document submitted prior to the closing of the draft EIS comment period, WIC shall provide an updated engineering and environmental analysis of collocating the proposed Piceance Project pipeline with the proposed Entrega Project pipeline north of the Yampa River (MP 87.6) to minimize impacts to sage grouse breeding and brooding habitat. (p. 4-16)

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LIST OF PREPARERS AND REVIEWERS

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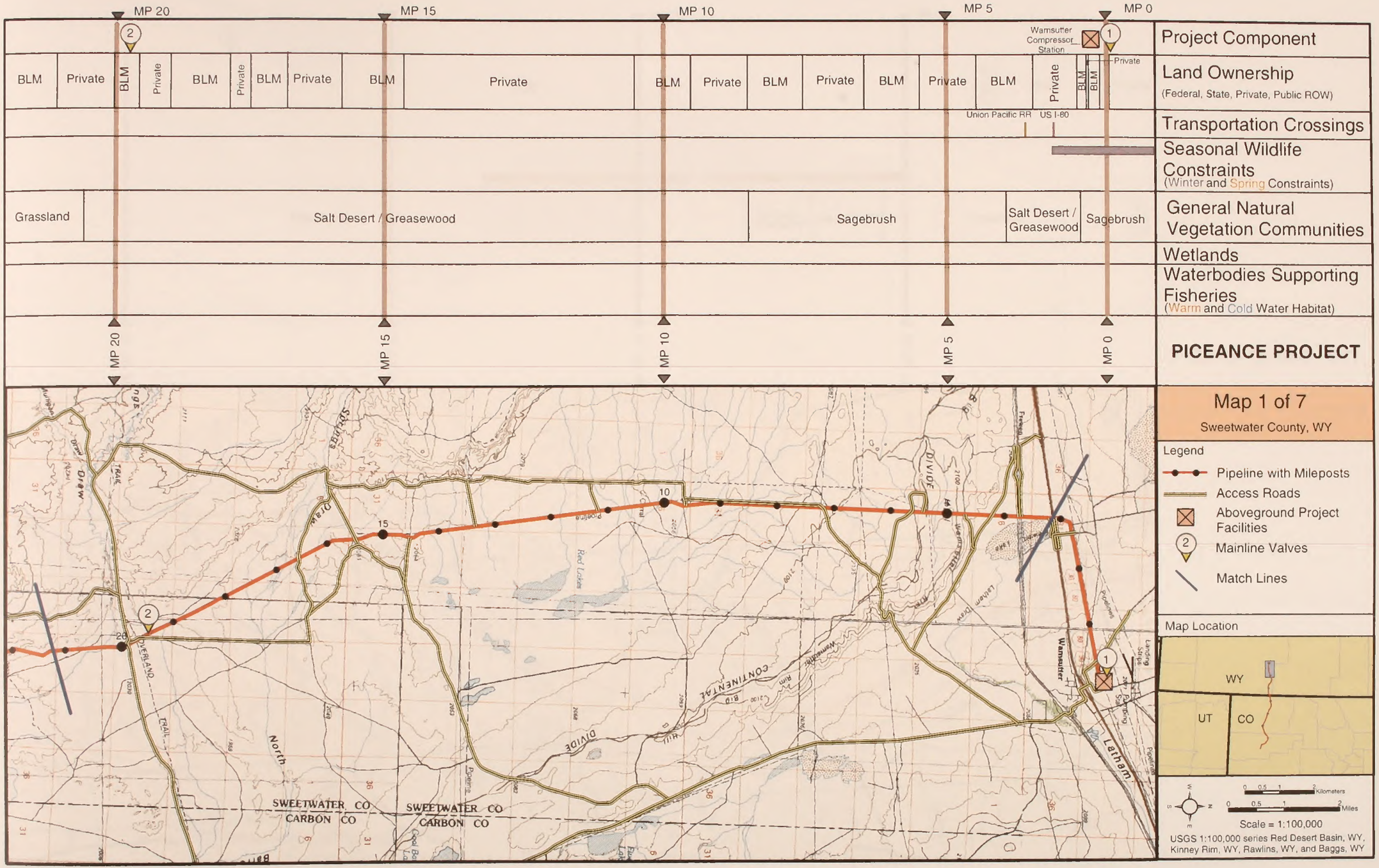
MAPS SHOWING PIPELINE ROUTE AND ABOVEGROUND FACILITIES


MP 20
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MP 10
MP 5
MP 0
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(Winter and Spring Constraints)
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CO
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USGS 1:100,000 series Red Desert Basin, WY, Kinney Rim, WY, Rawlins, WY, and Baggs, WY
Warnsutter Compressor Station
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Private
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Grassland
Salt Desert / Greasewood
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CONTINENTAL DIVIDE
North Draw
Draw
Springs
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Pipeline
Landing Strips
Pumping Station
Freeway
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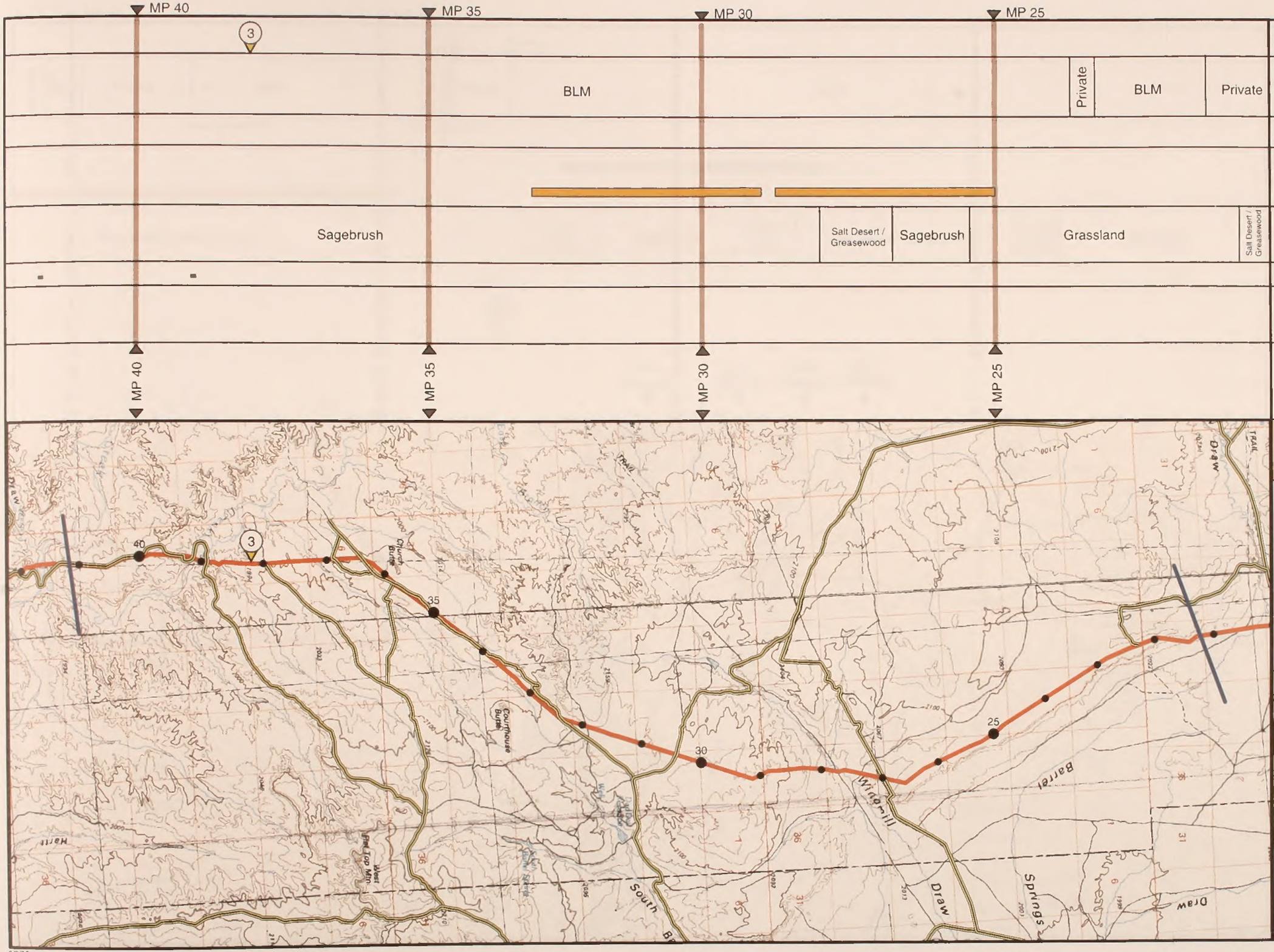
3/3/05



Project Component

Land Ownership
(Federal, State, Private, Public ROW)

Transportation Crossings

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Wetlands

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WY

UT

CO

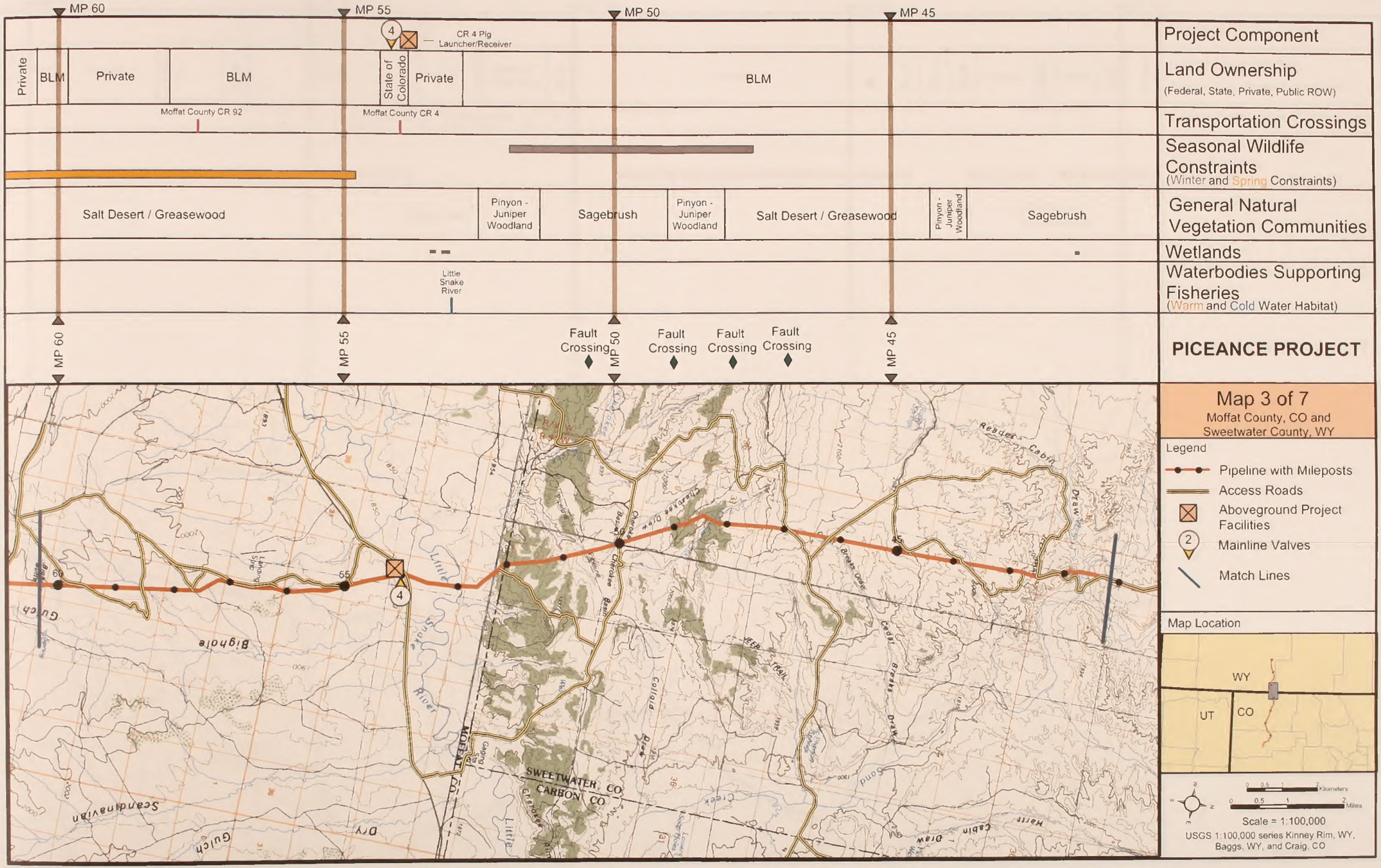
Kilometers

Miles

Scale = 1:100,000

USGS 1:100,000 series Kinney Rim, WY, and Baggs, WY

3/3/05


MP 60
MP 55
MP 50
MP 45
4
CR 4 Pig Launcher/Receiver
Project Component
Private
BLM
Private
BLM
State of Colorado
Private
BLM
Land Ownership
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Harris Cabin Draw
Sand Creek
JEEP TRAIL
SWEETWATER CO
CARBON CO
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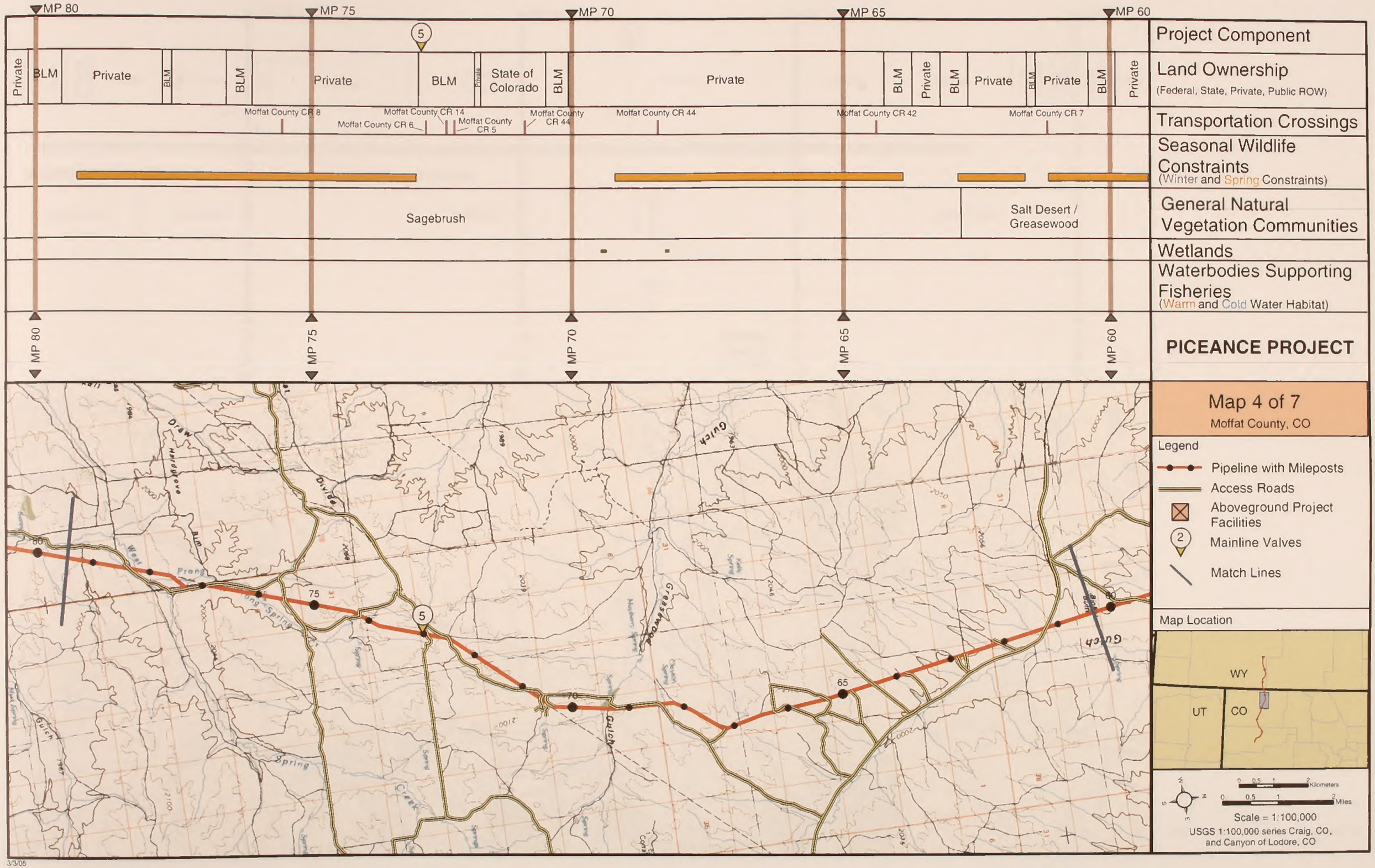
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MP 60
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BLM
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BLM
Private
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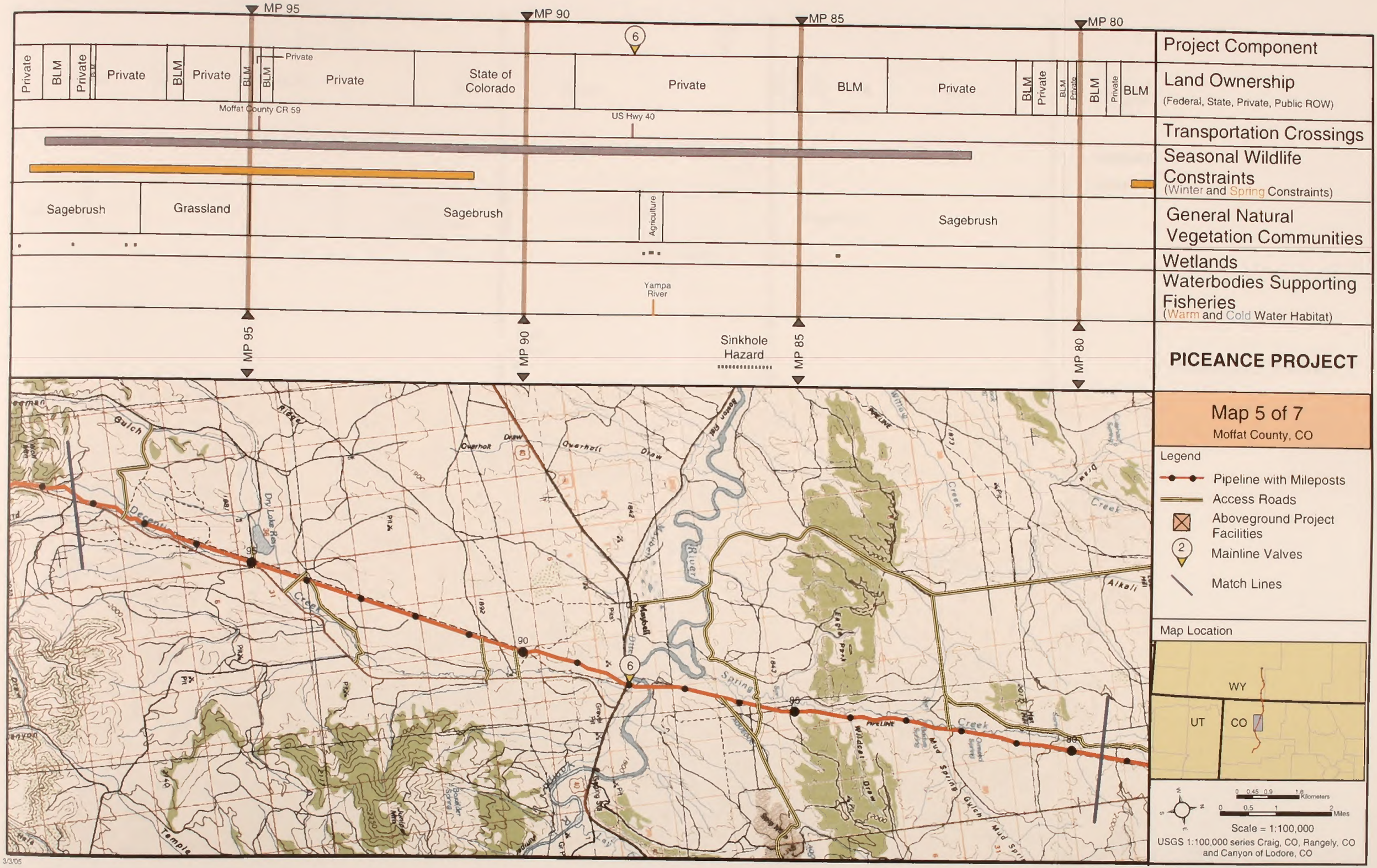
USGS 1:100,000 series Craig, CO, and Canyon of Lodore, CO
3/3/05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USGS 1:100,000 series Craig, CO, Rangely, CO and Canyon of Lodore, CO

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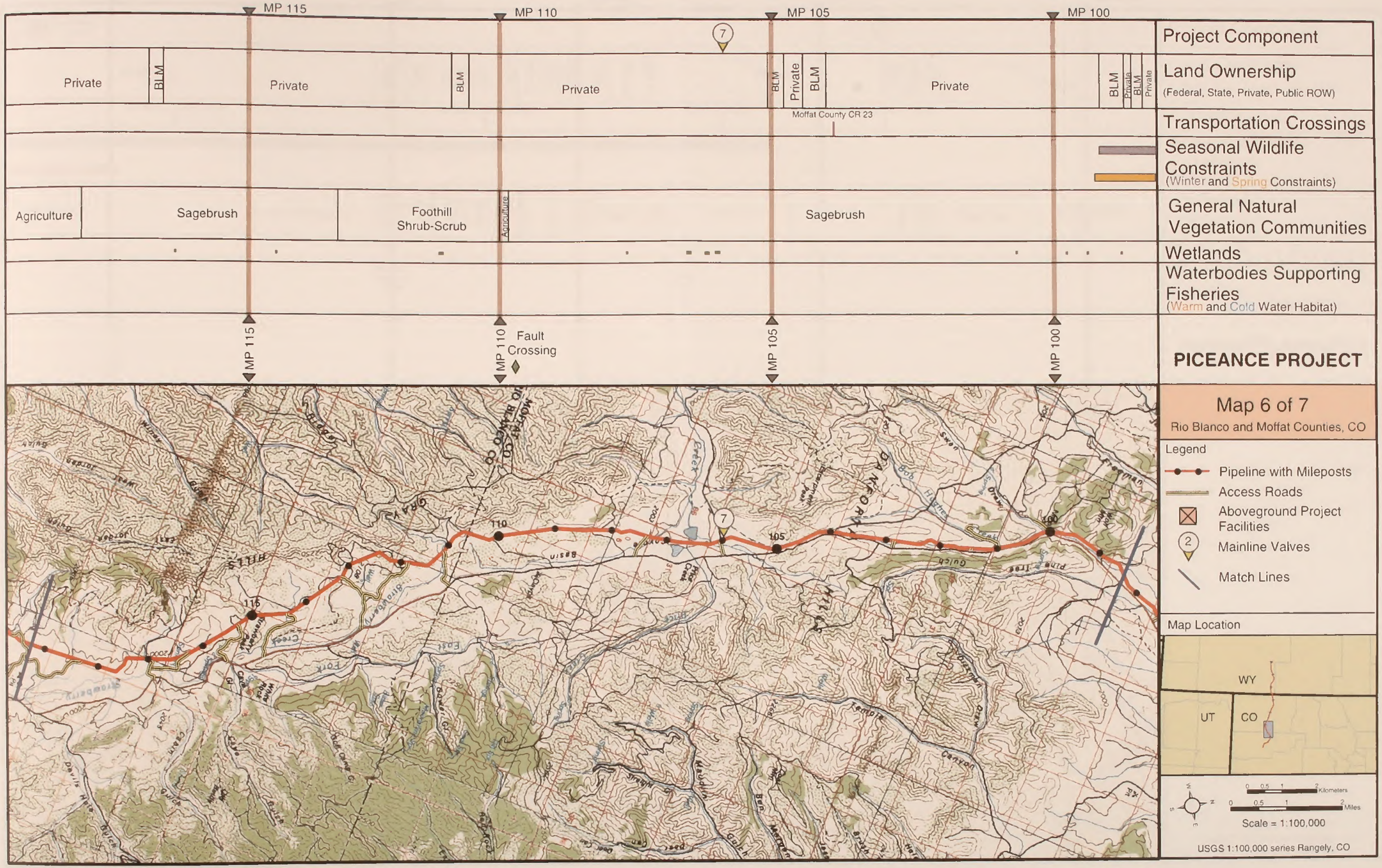
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MP 100
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Private
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BLM
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Scale = 1:100,000
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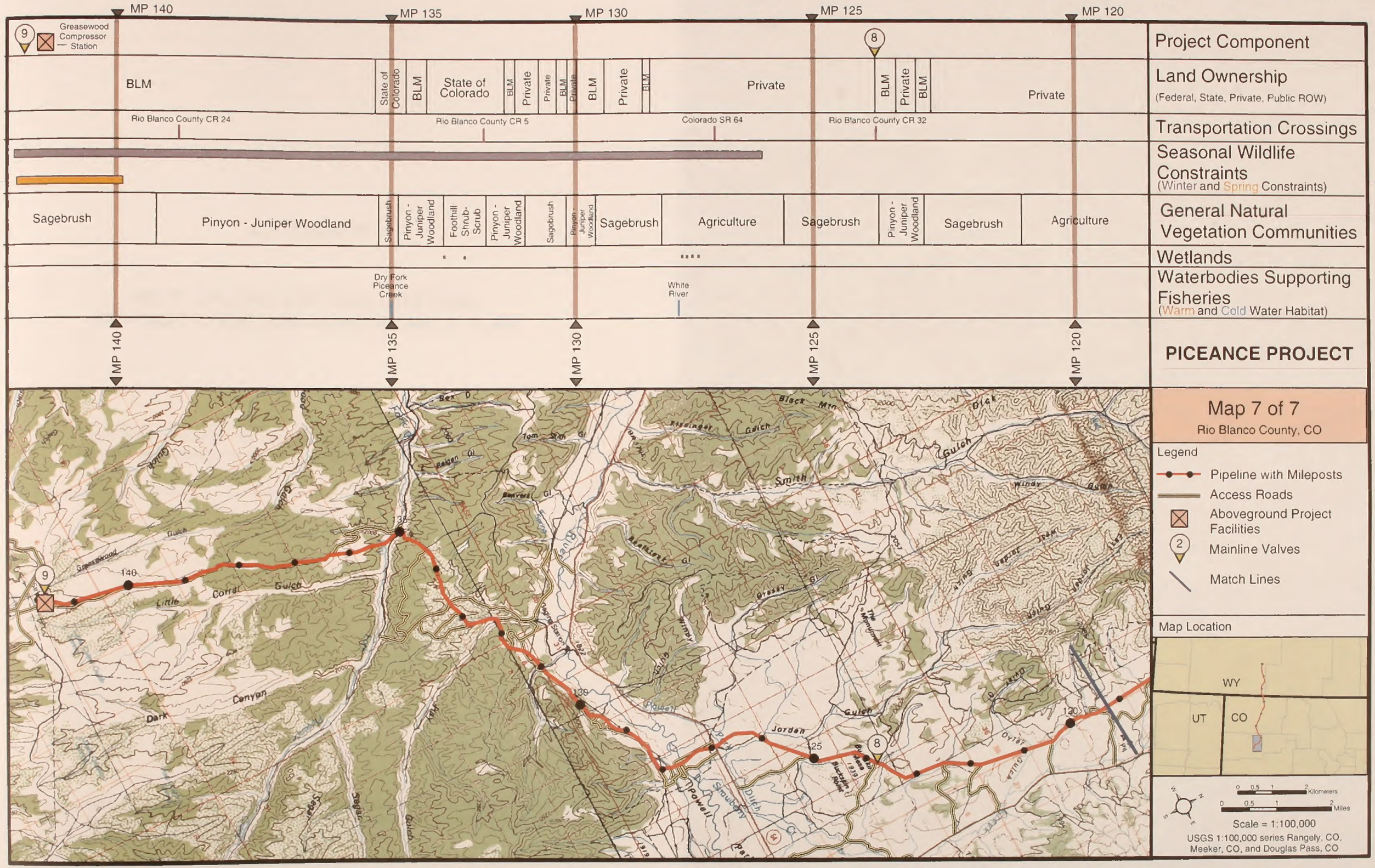
MP 140
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APPENDIX B

WIC'S UPLAND EROSION CONTROL, REVEGETATION, AND MAINTENANCE PLAN

THIS PLAN IS PART OF THE BLM'S DRAFT PLAN OF DEVELOPMENT (POD). FIGURES REFERENCED IN THIS PLAN ARE NOT INCLUDED IN THIS APPENDIX.

Note: WIC's modifications to the FERC Upland Erosion Control, Revegetation, and Maintenance Plant (FERC Plan) are highlighted with bold text. Variances to the FERC Plan are denoted by *bold, italic* text.

UPLAND EROSION CONTROL, REVEGETATION, AND MAINTENANCE PLAN

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UPLAND EROSION CONTROL, REVEGETATION, AND MAINTENANCE PLAN

I. APPLICABILITY

A. The intent of this Plan is to assist applicants by identifying baseline mitigation measures for minimizing erosion and enhancing revegetation. The project sponsors should specify in their applications for a FERC Certificate (Certificate) any individual measures in this Plan they consider unnecessary, technically infeasible, or unsuitable due to local conditions and to fully describe any alternative measures they would use. Applicants should also explain how those alternative measures would achieve a comparable level of mitigation.

Once a project is certificated, further changes can be approved. Any such changes from the measures in this Plan (or the applicant's approved plan) will be approved by the Director of the Office of Energy Projects (Director), upon the applicant's written request, if the Director agrees that an alternative measure:

1. provides equal or better environmental protection;

2. is necessary because a portion of this Plan is infeasible or unworkable based on project-specific conditions; or

3. is specifically required in writing by another Federal, state, or Native American land management agency for the portion of the project on its land or under its jurisdiction.

Any requirements in this Plan to file material with the Secretary of the FERC (Secretary) do not apply to projects undertaken under the provisions of the blanket certificate program. This exemption does not apply to a request for alternative measures.

Project-related impacts on wetland and waterbody systems are addressed in the staff's Wetland and Waterbody Construction and Mitigation Procedures (Procedures).

II. SUPERVISION AND INSPECTION

A. ENVIRONMENTAL INSPECTION

1. At least one Environmental Inspector is required for each construction spread during construction and restoration (as defined by section V). The number and experience of Environmental Inspectors assigned to each construction spread should be appropriate for the length of the construction spread and the number/significance of resources affected.

2. Environmental Inspectors shall have peer status with all other activity inspectors. **The EI will be supervised by and responsible to the Chief Inspector ("CI") who has overall authority over construction.**

3. Environmental Inspectors shall have the authority to stop activities that violate the environmental conditions of the Certificate, state and Federal environmental permit conditions, or landowner requirements; and to order appropriate corrective action.

B. RESPONSIBILITIES OF ENVIRONMENTAL INSPECTORS

At a minimum, the Environmental Inspector(s) shall be responsible for:

1. Ensuring compliance with the requirements of this Plan, the Procedures, the environmental conditions of the Certificate authorization, the mitigation measures proposed by the applicant (as approved and/or modified by the Certificate), other environmental permits and approvals, and environmental requirements in landowner easement agreements.

2. Identifying, documenting, and overseeing corrective actions, as necessary to bring an activity back into compliance;

3. Verifying that the limits of authorized construction work areas and locations of access roads are properly marked before clearing;

4. Verifying the location of signs and highly visible flagging marking the boundaries of sensitive resource areas, waterbodies, wetlands, or areas with special requirements along the construction work area;

5. Identifying erosion/sediment control and soil stabilization needs in all areas;

6. Ensuring that the location of dewatering structures and slope breakers will not direct water into known cultural resources sites or locations of

sensitive species;

7. Verifying that trench dewatering activities do not result in the deposition of sand, silt, and/or sediment near the point of discharge into a wetland or waterbody. If such deposition is occurring, the dewatering activity shall be stopped and the design of the discharge shall be changed to prevent reoccurrence;

8. Ensuring that subsoil and topsoil are tested in agricultural and residential areas to measure compaction and determine the need for corrective action;

9. Advising the Chief Construction Inspector when conditions (such as wet weather) make it advisable to restrict construction activities to avoid excessive rutting;

10. Ensuring restoration of contours and topsoil;

11. Verifying that the soils imported for agricultural or residential use have been certified as free of noxious weeds and soil pests, unless otherwise approved by the landowner;

12. Determining the need for and ensuring that erosion controls are properly installed, as necessary to prevent sediment flow into wetlands, waterbodies, sensitive areas, and onto roads;

13. Inspecting and ensuring the maintenance of temporary erosion control measures at least:

    a. on a daily basis in areas of active construction or equipment operation;

    b. on a weekly basis in areas with no construction or equipment operation; and

    c. within 24 hours of each 0.5 inch of rainfall;

    Although primarily the responsibility of the EI, all inspectors are responsible to regularly inspect and assess the condition of the erosion and sediment control devices employed on the ROW or workspace during construction.

14. Ensuring the repair of all ineffective temporary erosion control measures within 24 hours of identification;

15. Keeping records of compliance with the environmental conditions of the FERC certificate, and the mitigation measures proposed by the project sponsor in the application submitted to the FERC, and other Federal or state environmental permits during active construction and restoration; and

16. Identifying areas that should be given special attention to ensure stabilization and restoration after the construction phase;

III. PRECONSTRUCTION PLANNING

The project sponsor shall do the following before construction:

A. CONSTRUCTION WORK AREAS

1. Identify all construction work areas (e.g., construction right-of-way, extra work space areas, pipe storage and contractor yards, borrow and disposal areas, access roads, etc.) that would be needed for safe construction. The project sponsor must ensure that appropriate cultural resources and biological surveys have been conducted.

2. Project sponsors are encouraged to consider expanding any required cultural resources and endangered species surveys in anticipation of the need for activities outside of certificated work areas.

B. DRAIN TILE AND IRRIGATION SYSTEMS

1. Attempt to locate existing drain tiles and irrigation systems.

2. Contact landowners and local soil conservation authorities to determine the locations of future drain tiles that are likely to be installed within 3 years of the authorized construction.

3. Develop procedures for constructing through drain-tiled areas, maintaining irrigation systems during construction, and repairing drain tiles and irrigation systems after construction.

4. Engage qualified drain tile specialists, as needed to conduct or monitor repairs to drain tile systems affected by construction. Use drain tile specialists from the project area, if available.

C. GRAZING DEFERMENT

Develop grazing deferment plans with willing landowners, grazing permittees, and land management agencies to minimize grazing disturbance of revegetation

efforts.

D. ROAD CROSSINGS AND ACCESS POINTS

Plan for safe and accessible conditions at all roadway crossings and access points during construction and restoration.

E. DISPOSAL PLANNING

Determine methods and locations for the disposal of construction debris (e.g., timber, slash, mats, garbage, drilling fluids, excess rock, etc). Off-site disposal in other than commercially operated disposal locations is subject to compliance with all applicable survey, landowner permission, and mitigation requirements.

F. AGENCY COORDINATION

The project sponsor must coordinate with the appropriate local, state, and Federal agencies as outlined in this Plan and in the Certificate.

1. Obtain written recommendations from the local soil conservation authorities or land management agencies regarding permanent erosion control and revegetation specifications.

2. Develop specific procedures in coordination with the appropriate agency to prevent the introduction or spread of noxious weeds and soil pests resulting from construction and restoration activities.

G. STORMWATER POLLUTION PREVENTION PLAN

Make available on each construction spread the Stormwater Pollution Prevention Plan prepared for compliance with the U.S. Environmental Protection Agency's National Stormwater Program General Permit requirements. **This Plan, along with the SPCC make up the components of an SWPPP for compliance with the EPA's and/or state(s) National Pollution Discharge and Elimination System Program ("NPDES"). These components of the SWPPP will be retained at the construction offices associated with this project throughout the period of construction.**

IV. INSTALLATION

A. APPROVED AREAS OF DISTURBANCE

1. Project-related ground disturbance shall be limited to the construction right-of-way, extra work space areas, pipe storage yards, borrow and

disposal areas, access roads, and other areas approved in the Certificate. Any project-related ground disturbing activities outside these Certificated areas, except those needed to comply with the Plan and Procedures (e.g., slope breakers, energy-dissipating devices, dewatering structures, drain tile system repairs) will require prior Director approval. All construction or restoration activities outside of the Certificated areas are subject to all applicable survey and mitigation requirements.

Construction of a gas pipeline consists of distinct phases: clearing, grading, ditching, lowering-in, backfilling, hydrostatic testing and restoration as shown in figure Plan-1.

2. The construction right-of-way width for a project shall not exceed 75 feet or that described in the FERC application unless otherwise modified by a Certificate condition. However, in limited, non-wetland areas, this construction right-of-way width may be expanded by up to 25 feet without Director approval to accommodate full construction right-of-way topsoil segregation and to ensure safe construction where topographic conditions (such as side-slopes) or soil limitations require it. Twenty-five feet of extra construction right-of-way width may also be used in limited, non-wetland or non-forested areas for truck turn-arounds where no reasonable alternative access exists.

Figure Plan-2 shows a typical ROW configuration where construction activities will take place. Figures Plan-3 through Plan-6 show typical erosion control devices used during clearing, grading, and ditching phases of construction (i.e., Water Bars, Silt Fence, Hay/Straw Bales, Trench Breakers, respectively).

Project use of these additional limited areas is subject to landowner approval and compliance with all applicable survey and mitigation requirements. When such additional areas are used, each one should be identified and the need explained in the weekly or biweekly construction reports to the FERC, if required. The following material should be included in the reports:

a. the location of each additional area by station number and reference to a previously filed alignment sheet, or updated alignment sheets showing the additional areas;

b. identification of where the Commission's records contain evidence that the additional areas were previously surveyed; and

c. a statement that landowner approval has been obtained and is available in project files.

Prior written approval of the Director is required when the Certificated construction right-of-way width would be expanded by more than 25 feet.

B. TOPSOIL SEGREGATION

1. Unless the landowner or land management agency specifically approves otherwise, prevent the mixing of topsoil with subsoil by stripping topsoil from either the full work area or from the trench and subsoil storage area (ditch plus spoil side method) in:

a. actively cultivated or rotated croplands and pastures ;

b. residential areas;

c. hayfields; and

d. other areas at the landowner's or land managing agency's request.

For the Piceance Basin Expansion Project, in areas where the ground is naturally level, the Company proposes to separate topsoil up to one foot in depth along the ditch line only. The working and spoil sides of the right of way would be mowed or skimmed to promote equipment passage. The topsoil from the ditch line would be placed immediately next to the ditch line on the working side and will be under the string of pipe until backfill. After backfill, this topsoil will be spread evenly over the ditch line. By doing this, less disturbance will occur and more root stock from existing vegetation will be preserved. To reestablish compaction levels, in some areas, the Company may need to rip the working side, to a depth no greater than 12 inches. Disturbed areas will be seeded in accordance with the Company revegetation plan. Landowners of actively cultivated or rotated crop lands and improved pastures, residential areas, and hayfields will be contacted prior to using this method. This method will only be used if the landowner or land managing agency approves of this method in writing to the company.

2. In residential areas importation of topsoil is an acceptable alternative to topsoil segregation.

3. In deep soils (more than 12 inches of topsoil), segregate at least 12 inches of topsoil. In soils with less than 12 inches of topsoil make every effort to segregate the entire topsoil layer. ***In areas where topsoil segregation is required and the landowner or land managing agency specifically approves in writing, the Company proposes to segregate no less than six inches and no more than 12 inches where topsoil is available. In general, if topsoil is present at all, a six inch salvage is necessary to capture topsoil. A lesser depth would involve too small of a volume, a volume that could be easily lost. The native seed base is contained in the top 12 inches of topsoil. Removal of deeper topsoil will dilute this seed base and will not promote return of native vegetation as well. Further, most soils along the project are between six and 12 inches in depth.***

4. Where topsoil segregation is required, maintain separation of salvaged topsoil and subsoil throughout all construction activities.

5. Segregated topsoil may not be used for padding the pipe.

C. DRAIN TILES

1. Mark locations of drain tiles damaged during construction.

2. Probe all drainage tile systems within the area of disturbance to check for damage.

3. Repair damaged drain tiles to their original or better condition. Do not use filter-covered drain tiles unless the local soil conservation authorities and the landowner agree. Use qualified specialists for testing and repairs.

4. For new pipelines in areas where drain tiles exist or are planned, ensure that the depth of cover over the pipeline is sufficient to avoid interference with drain tile systems. For adjacent pipeline loops in agricultural areas, install the new pipeline with at least the same depth of cover as the existing pipeline(s).

D. IRRIGATION

Maintain water flow in crop irrigation systems, unless shutoff is coordinated with affected parties.

E. ROAD CROSSINGS AND ACCESS POINTS

1. Maintain safe and accessible conditions at all road crossings and access points during construction.

2. If crushed stone access pads are used in residential, or active agricultural areas, place the stone on synthetic fabric to facilitate removal (**see figure Plan-7**).

F. TEMPORARY EROSION CONTROL

Install temporary erosion controls immediately after initial disturbance of the soil. Temporary erosion controls must be properly maintained throughout construction (on a daily basis) and reinstalled as necessary (such as after backfilling of the trench) until replaced by permanent erosion controls or restoration is complete.

1. Temporary Slope Breakers (**see figure Plan-3**)

   a. Temporary slope breakers are intended to reduce runoff velocity and divert water off the construction right-of-way. Temporary slope breakers may be constructed of materials such as soil, silt fence, staked hay or straw bales, or sand bags.

   b. Install temporary slope breakers on all disturbed areas, as necessary to avoid excessive erosion. Temporary slope breakers must be installed on slopes greater than 5 percent where the base of the slope is less than 50 feet from waterbody, wetland, and road crossings at the following spacing (closer spacing should be used if necessary):

Slope (%)	Spacing (feet)
5 - 15	300
>15 - 30	200
>30	100

   c. Direct the outfall of each temporary slope breaker to a stable, well vegetated area or construct an energy-dissipating device at the end of the slope breaker and off the construction right-of-way.

   d. Position the outfall of each temporary slope breaker to prevent sediment discharge into wetlands, waterbodies, or other sensitive resources.

2. Sediment Barriers

   a. Sediment barriers are intended to stop the flow of sediments and to prevent the deposition of sediments into sensitive resources. They may be constructed of materials such as silt fence, staked hay or

straw bales, compacted earth (e.g., driveable berms across travelways), sand bags, or other appropriate materials.

b. At a minimum, install and maintain temporary sediment barriers across the entire construction right-of-way at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a waterbody, wetland, or road crossing until revegetation is successful as defined in this Plan. Leave adequate room between the base of the slope and the sediment barrier to accommodate ponding of water and sediment deposition.

c. Where wetlands or waterbodies are adjacent to and downslope of construction work areas, install sediment barriers along the edge of these areas, as necessary to prevent sediment flow into the wetland or waterbody.

3. Mulch

a. Apply mulch on all slopes (except in actively cultivated cropland) concurrent with or immediately after seeding, where necessary to stabilize the soil surface and to reduce wind and water erosion. Spread mulch uniformly over the area to cover at least 75 percent of the ground surface at a rate of 2 tons/acre of straw or its equivalent, unless the local soil conservation authority, landowner, or land managing agency approves otherwise in writing.

b. Mulch can consist of weed-free straw or hay, wood fiber hydromulch, erosion control fabric, or some functional equivalent.

c. Mulch <u>before</u> seeding if:

(1) final grading and installation of permanent erosion control measures, will not be completed in an area within 20 days after the trench in that area is backfilled (10 days in residential areas), as required in section V.A.1; or

(2) construction or restoration activity is interrupted for extended periods, such as when seeding cannot be completed due to seeding period restrictions.

d. If mulching <u>before</u> seeding, increase mulch application on all slopes within 100 feet of waterbodies and wetlands to a rate of 3 tons/acre of straw or equivalent.

e. If wood chips are used as mulch, do not use more than 1 ton/acre and add the equivalent of 11 lbs/acre available nitrogen (at least 50 percent of which is slow release).

f. Ensure that mulch is adequately anchored to minimize loss due to wind and water.

g. When anchoring with liquid mulch binders, use rates recommended by the manufacturer. Do not use liquid mulch binders within 100 feet of wetlands or waterbodies.

h. Install erosion control fabric on waterbody banks at the time of final bank recontouring. Anchor the erosion control fabric with pegs, staples or other appropriate devices **(see figure Plan-8)**.

V. RESTORATION

A. CLEANUP

1. Commence cleanup operations immediately following backfill operations. Complete final grading, topsoil replacement, and installation of permanent erosion control structures within 20 days after backfilling the trench (10 days in residential areas). If seasonal or other weather conditions prevent compliance with these time frames, maintain temporary erosion controls (temporary slope breakers and sediment barriers) until conditions allow completion of cleanup.

   The project sponsor should file with the Secretary for the review and written approval of the Director, a winterization plan if construction will continue into the winter season when conditions could delay successful decompaction, topsoil replacement, or seeding until the following spring.

2. A travel lane may be left open temporarily to allow access by construction traffic if the temporary erosion control structures are installed as specified in section IV.F. and inspected and maintained as specified in sections II.B.12 through 14. When access is no longer required the travel lane must be removed and the right-of-way restored.

3. Rock excavated from the trench may be used to backfill the trench only to the top of the existing bedrock profile. Rock that is not returned to the trench should be considered construction debris, unless approved for use as mulch or for some other use on the construction work areas by the landowner or land managing agency.

4. Remove excess rock from at least the top 12 inches of soil in all actively cultivated or rotated cropland and pastures, hayfields, and residential areas, as well as other areas at the landowner's request. The size, density, and distribution of rock on the construction work area should be similar to adjacent areas not disturbed by construction. The landowner may approve other provisions in writing.

5. Grade the construction right-of-way to restore pre-construction contours and leave the soil in the proper condition for planting.

6. Remove construction debris from all construction work areas unless the landowner or land managing agency approves otherwise.

7. Remove temporary sediment barriers when replaced by permanent erosion control measures or when revegetation is successful.

B. PERMANENT EROSION CONTROL DEVICES

1. Trench Breakers **(see figure Plan-6)**

   a. Trench breakers are intended to slow the flow of subsurface water along the trench. Trench breakers may be constructed of materials such as sand bags or polyurethane foam. Do not use topsoil in trench breakers.

   b. An engineer or similarly qualified professional shall determine the need for and spacing of trench breakers. Otherwise, trench breakers shall be installed at the same spacing as and upslope of permanent slope breakers.

   c. In agricultural fields and residential areas where slope breakers are not typically required, install trench breakers at the same spacing as if permanent slope breakers were required.

   d. At a minimum, install a trench breaker at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a waterbody or wetland and where needed to avoid draining a waterbody or wetland.

2. Permanent Slope Breakers **(see figure Plan-3)**

   a. Permanent slope breakers are intended to reduce runoff velocity, divert water off the construction right-of-way, and prevent sediment deposition into sensitive resources. Permanent slope

breakers may be constructed of materials such as soil, sand bags, or some functional equivalent.

b. Construct and maintain permanent slope breakers in all areas, except cultivated areas and lawns, using spacing recommendations obtained from the local soil conservation authority or land managing agency.

In the absence of written recommendations, use the following spacing unless closer spacing is necessary to avoid excessive erosion on the construction right-of-way:

Slope (%)	Spacing (feet)
5 - 15	300
>15 - 30	200
>30	100

c. Construct slope breakers to divert surface flow to a stable area without causing water to pool or erode behind the breaker. In the absence of a stable area, construct appropriate energy-dissipating devices at the end of the breaker.

d. Slope breakers may extend slightly (about 4 feet) beyond the edge of the construction right-of-way to effectively drain water off the disturbed area. Where slope breakers extend beyond the edge of the construction right-of-way, they are subject to compliance with all applicable survey requirements.

C. SOIL COMPACTION MITIGATION

1. Test topsoil and subsoil for compaction at regular intervals in agricultural and residential areas disturbed by construction activities. Conduct tests on the same soil type under similar moisture conditions in undisturbed areas to approximate preconstruction conditions. Use penetrometers or other appropriate devices to conduct tests.

2. Plow severely compacted agricultural areas with a paraplow or other deep tillage implement. In areas where topsoil has been segregated, plow the subsoil before replacing the segregated topsoil.

Alternatively, make arrangements with the landowner to plant and plow under a "green manure" crop, such as alfalfa, to decrease soil bulk density and improve soil structure. If subsequent construction and cleanup activities result in further compaction, conduct additional tilling.

3. Perform appropriate soil compaction mitigation in severely compacted residential areas.

D. REVEGETATION

1. General

a. The project sponsor is responsible for ensuring successful revegetation of soils disturbed by project-related activities, except as noted in section V.D.1.b.

b. Restore all turf, ornamental shrubs, and specialized landscaping in accordance with the landowner's request, or compensate the landowner. Restoration work must be performed by personnel familiar with local horticultural and turf establishment practices.

2. Soil Additives

Fertilize and add soil pH modifiers in accordance with written recommendations obtained from the local soil conservation authority, land management agencies, or landowner. Incorporate recommended soil pH modifier and fertilizer into the top 2 inches of soil as soon as possible after application.

3. Seeding Requirements

a. Prepare a seedbed in disturbed areas to a depth of 3 to 4 inches using appropriate equipment to provide a firm seedbed. When hydroseeding, scarify the seedbed to facilitate lodging and germination of seed.

b. Seed disturbed areas in accordance with written recommendations for seed mixes, rates, and dates obtained from the local soil conservation authority or the request of the landowner or land management agency. Seeding is not required in actively cultivated croplands unless requested by the landowner.

c. Perform seeding of permanent vegetation within the recommended seeding dates. If seeding cannot be done within those dates, use appropriate temporary erosion control measures discussed in section IV.F. and perform seeding of permanent vegetation at the beginning of the next recommended seeding season. ***However, the Company plans to seed whenever the clean up is complete, even if***

it is not in the recommended seeding season. This will permit establishment of at least some seed and does not relieve the Company of its responsibility to achieve acceptable reclamation after construction. Company will mulch all areas seeded outside the recommended season, at mulch rates described herein for seeded areas. This variance will be implemented only if the NRCS offices in affected areas have approved of this out of season seeding proposal. Lawns may be seeded on a schedule established with the landowner.

d. In the absence of written recommendations from the local soil conservation authorities, seed all disturbed soils within 6 working days of final grading, weather and soil conditions permitting, subject to the specifications in section V.D.3.a-c. ***Due to the length of this project and potential for separation between seeding crews and final clean up crews, the Company proposes to extend the time between these activities from six working days to twelve working days (fourteen calendar days), weather permitting, subject to approval of the affected landowner or land managing agency.***

e. Base seeding rates on Pure Live Seed. Use seed within 12 months of seed testing.

f. Treat legume seed with an inoculant specific to the species using the manufacturer's recommended rate of inoculant appropriate for the seeding method (broadcast, drill, or hydro).

g. In the absence of written recommendations from the local soil conservation authorities, landowner, or land managing agency to the contrary, a seed drill equipped with a cultipacker is preferred for seed application.

Broadcast or hydroseeding can be used in lieu of drilling at double the recommended seeding rates. Where seed is broadcast, firm the seedbed with a cultipacker or roller after seeding. In rocky soils or where site conditions may limit the effectiveness of this equipment, other alternatives may be appropriate (e.g., use of a chain drag) to lightly cover seed after application, as approved by the Environmental Inspector.

VI. OFF-ROAD VEHICLE CONTROL

To each owner or manager of forested lands offer to install and maintain measures to

control unauthorized vehicle access to the right-of-way. These measures may include:

A. Signs;

B. Fences with locking gates;

C. Slash and timber barriers, pipe barriers, or a line of boulders across the right-of-way; and

D. Conifers or other appropriate trees/or shrubs across the right-of-way.

VII. POST-CONSTRUCTION ACTIVITIES

A. MONITORING AND MAINTENANCE

1. Conduct follow-up inspections of all disturbed areas after the first and second growing seasons to determine the success of revegetation.

2. Revegetation in non-agricultural areas shall be considered successful if upon visual survey the density and cover of non-nuisance vegetation are similar in density and cover to adjacent undisturbed lands. In agricultural areas, revegetation shall be considered successful if crop yields are similar to adjacent undisturbed portions of the same field.

   Continue revegetation efforts until revegetation is successful.

3. Monitor and correct problems with drainage and irrigation systems resulting from pipeline construction in active agricultural areas until restoration is successful.

4. Restoration shall be considered successful if the right-of-way surface condition is similar to adjacent undisturbed lands, construction debris is removed (unless requested otherwise by the land owner or land managing agency), revegetation is successful, and proper drainage has been restored.

5. Routine vegetation maintenance clearing shall not be done more frequently than every 3 years. However, to facilitate periodic corrosion and leak surveys, a corridor not exceeding 10 feet in width centered on the pipeline may be maintained annually in a herbaceous state. In no case shall routine vegetation maintenance clearing occur between April 15 and August 1 of any year.

6. Efforts to control unauthorized off-road vehicle use, in cooperation with the landowner, shall continue throughout the life of the project. Maintain

signs, gates, and vehicle trails as necessary.

B. REPORTING

1. The project sponsor shall maintain records that identify by milepost:

   a. method of application, application rate, and type of fertilizer, pH modifying agent, seed, and mulch used;

   b. acreage treated;

   c. dates of backfilling and seeding;

   d. names of landowners requesting special seeding treatment and a description of the follow-up actions; and

   e. any problem areas and how they were addressed.

2. The project sponsor shall file with the Secretary quarterly activity reports documenting problems, including those identified by the landowner, and corrective actions taken for at least 2 years following construction.

APPENDIX C

WIC'S WETLAND AND WATERBODY CONSTRUCTION AND MITIGATION PROCEDURES

THIS PLAN IS PART OF THE BLM'S DRAFT PLAN OF DEVELOPMENT (POD). FIGURES REFERENCED IN THIS PLAN ARE NOT INCLUDED IN THIS APPENDIX.

Note: WIC's modifications to the FERC Wetland and Waterbody Construction and Mitigation Procedures (FERC Procedures) are highlighted with bold text. Variances to the FERC Plan are denoted by *bold, italic* text.

WETLAND AND WATERBODY CONSTRUCTION AND MITIGATION PROCEDURES

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WETLAND AND WATERBODY CONSTRUCTION AND MITIGATION PROCEDURES

I. APPLICABILITY

A. The intent of these Procedures is to assist applicants by identifying baseline mitigation measures for minimizing the extent and duration of project-related disturbance on wetlands and waterbodies. The project sponsors should specify in their applications for a FERC Certificate (Certificate) any individual measures in these Procedures they consider unnecessary, technically infeasible, or unsuitable due to local conditions and to fully describe any alternative measures they would use. Applicants should also explain how those alternative measures would achieve a comparable level of mitigation.

Once a project is certificated, further changes can be approved. Any such changes from the measures in these Procedures (or the applicant's approved procedures) will be approved by the Director of the Office of Energy Projects (Director), upon the applicant's written request, if the Director agrees that an alternative measure:

1. provides equal or better environmental protection;

2. is necessary because a portion of these Procedures is infeasible or unworkable based on project-specific conditions; or

3. is specifically required in writing by another Federal, state, or Native American land management agency for the portion of the project on its land or under its jurisdiction.

Any requirements in these Procedures to file material with the Secretary of the FERC (Secretary) do not apply to projects undertaken under the provisions of the blanket certificate program. This exemption does not apply to a request for alternative measures.

Project-related impacts on non-wetland areas are addressed in the staff's Upland Erosion Control, Revegetation, and Maintenance Plan (Plan).

B. DEFINITIONS

1. "Waterbody" includes any natural or artificial stream, river, or drainage with perceptible flow <u>at the time of crossing</u>, and other permanent waterbodies such as ponds and lakes:

a. "minor waterbody" includes all waterbodies less than or equal to 10 feet wide at the water's edge at the time of construction;

b. "intermediate waterbody" includes all waterbodies greater than 10 feet wide but less than or equal to 100 feet wide at the water's edge at the time of construction; and

c. "major waterbody" includes all waterbodies greater than 100 feet wide at the water's edge at the time of construction.

2. "Wetland" includes any area that is not in actively cultivated or rotated cropland and that satisfies the requirements of the current Federal methodology for identifying and delineating wetlands.

II. PRECONSTRUCTION FILING

A. The following information shall be filed with the Secretary prior to the beginning of construction:

1. the hydrostatic testing information specified in section VII.B.3. and a wetland delineation report as described in section VI.A.1., if applicable; and

2. a schedule identifying when trenching or blasting would occur within each waterbody greater than 10 feet wide, or within any designated coldwater fishery. The project sponsor shall revise the schedule as necessary to provide FERC staff at least 14 days advance notice. Changes within this last 14-day period must provide for at least 48 hours advance notice.

B. The following site-specific construction plans required by these Procedures must be filed with the Secretary for the review and written approval by the Director:

1. plans for extra work areas that would be closer than 50 feet from a waterbody or wetland;

2. plans for major waterbody crossings;

3. plans for the use of a construction right-of-way greater than 75 feet wide in wetlands; and

4. plans for horizontal directional drill (HDD) "crossings" of wetlands or waterbodies.

III. ENVIRONMENTAL INSPECTORS

A. At least one Environmental Inspector having knowledge of the wetland and waterbody conditions in the project area is required for each construction spread. The number and experience of Environmental Inspectors assigned to each construction spread should be appropriate for the length of the construction spread and the number/significance of resources affected.

B. The Environmental Inspector's responsibilities are outlined in the Upland Erosion Control, Revegetation, and Maintenance Plan (Plan).

IV. PRECONSTRUCTION PLANNING

A. A copy of the Stormwater Pollution Prevention Plan (SWPPP) prepared for compliance with the U.S. Environmental Protection Agency's (EPA) National Stormwater Program General Permit requirements must be available in the field on each construction spread. The SWPPP shall contain Spill Prevention and Response Procedures that meet the requirements of state and Federal agencies. **These Procedures, taken with the FERC Plan and the SPCC, make up the components of an SWPPP for compliance with the EPA's and/or state(s) National Pollution Discharge and Elimination System Program ("NPDES").**

1. It shall be the responsibility of the project sponsor and its contractors to structure their operations in a manner that reduces the risk of spills or the accidental exposure of fuels or hazardous materials to waterbodies or wetlands. The project sponsor and its contractors must, at a minimum, ensure that:

   a. all employees handling fuels and other hazardous materials are properly trained;

   b. all equipment is in good operating order and inspected on a regular basis;

   c. fuel trucks transporting fuel to on-site equipment travel only on approved access roads;

   d. all equipment is parked overnight and/or fueled at least 100 feet from a waterbody or in an upland area at least 100 feet from a wetland boundary. These activities can occur closer only if the Environmental Inspector finds, in advance, no reasonable alternative and the project sponsor and its contractors have taken appropriate steps (including secondary containment structures) to

prevent spills and provide for prompt cleanup in the event of a spill;

e. hazardous materials, including chemicals, fuels, and lubricating oils, are not stored within 100 feet of a wetland, waterbody, or designated municipal watershed area, unless the location is designated for such use by an appropriate governmental authority. This applies to storage of these materials and does not apply to normal operation or use of equipment in these areas; and

f. concrete coating activities are not performed within 100 feet of a wetland or waterbody boundary, unless the location is an existing industrial site designated for such use.

2. The project sponsor and its contractors must structure their operations in a manner that provides for the prompt and effective cleanup of spills of fuel and other hazardous materials. At a minimum, the project sponsor and its contractors must:

a. ensure that each construction crew (including cleanup crews) has on hand sufficient supplies of absorbent and barrier materials to allow the rapid containment and recovery of spilled materials and knows the procedure for reporting spills;

b. ensure that each construction crew has on hand sufficient tools and material to stop leaks;

c. know the contact names and telephone numbers for all local, state, and Federal agencies (including, if necessary, the U. S. Coast Guard and the National Response Center) that must be notified of a spill; and

d. follow the requirements of those agencies in cleaning up the spill, in excavating and disposing of soils or other materials contaminated by a spill, and in collecting and disposing of waste generated during spill cleanup.

B. AGENCY COORDINATION

The project sponsor must coordinate with the appropriate local, state, and Federal agencies as outlined in these Procedures and in the Certificate.

V. WATERBODY CROSSINGS

A. NOTIFICATION PROCEDURES AND PERMITS

1. Apply to the U.S. Army Corps of Engineers (COE), or its delegated agency, for the appropriate wetland and waterbody crossing permits.

2. Provide written notification to authorities responsible for potable surface water supply intakes located within 3 miles downstream of the crossing at least 1 week before beginning work in the waterbody, or as otherwise specified by that authority.

3. Apply for state-issued waterbody crossing permits and obtain individual or generic section 401 water quality certification or waiver.

4. Notify appropriate state authorities at least 48 hours before beginning trenching or blasting within the waterbody, or as specified in state permits.

B. INSTALLATION

1. Time Window for Construction

Unless expressly permitted or further restricted by the appropriate state agency in writing on a site-specific basis, instream work, except that required to install or remove equipment bridges, must occur during the following time windows:

a. coldwater fisheries - June 1 through September 30; and

b. coolwater and warmwater fisheries - June 1 through November 30.

2. Extra Work Areas

a. Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from water's edge, except where the adjacent upland consists of actively cultivated or rotated cropland or other disturbed land.

b.The project sponsor shall file with the Secretary for review and written approval by the Director, a site-specific construction plan for each extra work area with a less than 50-foot setback from the water's edge, (except where the adjacent upland consists of actively cultivated or rotated cropland or other disturbed land) and a site-specific explanation of the conditions that will not

permit a 50-foot setback. ***The Company has proposed site specific crossing procedures at three perennial waterbody crossings included with the application. These site specific crossing procedures include variances from the setback requirements contained herein. The Company proposes to follow the requirements herein at crossings where site specific plans have not been filed with and approved by the Director of OEP.***

c. Limit clearing of vegetation between extra work areas and the edge of the waterbody to the certificated construction right-of-way.

d. Limit the size of extra work areas to the minimum needed to construct the waterbody crossing.

3. General Crossing Procedures

a. Comply with the COE, or its delegated agency, permit terms and conditions.

b. Construct crossings as close to perpendicular to the axis of the waterbody channel as engineering and routing conditions permit.

c. If the pipeline parallels a waterbody, attempt to maintain at least 15 feet of undisturbed vegetation between the waterbody (and any adjacent wetland) and the construction right-of-way.

d. Where waterbodies meander or have multiple channels, route the pipeline to minimize the number of waterbody crossings.

e. Maintain adequate flow rates to protect aquatic life, and prevent the interruption of existing downstream uses.

f. Waterbody buffers (extra work area setbacks, refueling restrictions, etc.) must be clearly marked in the field with signs and/or highly visible flagging until construction-related ground disturbing activities are complete.

4. Spoil Pile Placement and Control

a. All spoil from minor and intermediate waterbody crossings, and upland spoil from major waterbody crossings, must be placed in

the construction right-of-way at least 10 feet from the water's edge or in additional extra work areas as described in section V.B.2.

b. Use sediment barriers to prevent the flow of spoil or heavily silt-laden water into any waterbody.

5. Equipment Bridges

a. Only clearing equipment and equipment necessary for installation of equipment bridges may cross waterbodies prior to bridge installation. Limit the number of such crossings of each waterbody to one per piece of clearing equipment.

b. Construct equipment bridges to maintain unrestricted flow and to prevent soil from entering the waterbody. Examples of such bridges include:

(1) equipment pads and culvert(s) (**see figure Proc-1**);

(2) equipment pads or railroad car bridges without culverts (**see figure Proc-2**);

(3) clean rock fill and culvert(s) (**see figure Proc-3**); and

(4) flexi-float or portable bridges (**see figure Proc-4**).

Additional options for equipment bridges may be utilized that achieve the performance objectives noted above. Do not use soil to construct or stabilize equipment bridges.

c. Design and maintain each equipment bridge to withstand and pass the highest flow expected to occur while the bridge is in place. Align culverts to prevent bank erosion or streambed scour. If necessary, install energy dissipating devices downstream of the culverts.

d. Design and maintain equipment bridges to prevent soil from entering the waterbody.

e. Remove equipment bridges as soon as possible after permanent seeding unless the COE, or its delegated agency, authorizes it as a permanent bridge.

f. If there will be more than 1 month between final cleanup and the beginning of permanent seeding and reasonable alternative access to the right-of-way is available, remove equipment bridges as soon as possible after final cleanup.

6. Dry-Ditch Crossing Methods

a. Unless approved otherwise by the appropriate state agency, install the pipeline using one of the dry-ditch methods outlined below for crossings of waterbodies up to 30 feet wide (at the water's edge at the time of construction) that are state-designated as either coldwater or significant coolwater or warmwater fisheries.

b. Dam and Pump **(see figure Proc-5)**

(1) The dam-and-pump method may be used without prior approval for crossings of waterbodies where pumps can adequately transfer streamflow volumes around the work area, and there are no concerns about sensitive species passage.

(2) Implementation of the dam-and-pump crossing method must meet the following performance criteria:

(i) use sufficient pumps, including on-site backup pumps, to maintain downstream flows;

(ii) construct dams with materials that prevent sediment and other pollutants from entering the waterbody (e.g., sandbags or clean gravel with plastic liner);

(iii) screen pump intakes;

(iv) prevent streambed scour at pump discharge; and

(v) monitor the dam and pumps to ensure proper operation throughout the waterbody crossing.

c. Flume Crossing **(see figure Proc-6)**

The flume crossing method requires implementation of the following steps:

(1) install flume pipe after blasting (if necessary), but before any trenching;

(2) use sand bag or sand bag and plastic sheeting diversion structure or equivalent to develop an effective seal and to divert stream flow through the flume pipe (some modifications to the stream bottom may be required in to achieve an effective seal);

(3) properly align flume pipe(s) to prevent bank erosion and streambed scour;

(4) do not remove flume pipe during trenching, pipelaying, or backfilling activities, or initial streambed restoration efforts; and

(5) remove all flume pipes and dams that are not also part of the equipment bridge as soon as final cleanup of the stream bed and bank is complete.

d. Horizontal Directional Drill (HDD) **(see figure Proc-7)**

To the extent they were not provided as part of the pre-certification process, for each waterbody or wetland that would be crossed using the HDD method, provide a plan that includes:

(1) site-specific construction diagrams that show the location of mud pits, pipe assembly areas, and all areas to be disturbed or cleared for construction;

(2) a description of how an inadvertent release of drilling mud would be contained and cleaned up; and

(3) a contingency plan for crossing the waterbody or wetland in the event the directional drill is unsuccessful and how the abandoned drill hole would be sealed, if necessary.

7. Crossings of Minor Waterbodies **(see figure Proc-8)**

Where a dry-ditch crossing is not required, minor waterbodies may be crossed using the open-cut crossing method, with the following restrictions:

a. except for blasting and other rock breaking measures, complete instream construction activities (including trenching, pipe installation, backfill, and restoration of the streambed contours)

within 24 hours. Streambanks and unconsolidated streambeds may require additional restoration after this period;

b. limit use of equipment operating in the waterbody to that needed to construct the crossing; and

c. equipment bridges are not required at minor waterbodies that do not have a state-designated fishery classification (e.g., agricultural or intermittent drainage ditches). However, if an equipment bridge is used it must be constructed as described in section V.B.5.

8. Crossings of Intermediate Waterbodies

Where a dry-ditch crossing is not required, intermediate waterbodies may be crossed using the open-cut crossing method, with the following restrictions:

a. complete instream construction activities (not including blasting and other rock breaking measures) within 48 hours, unless site-specific conditions make completion within 48 hours infeasible;

b. limit use of equipment operating in the waterbody to that needed to construct the crossing; and

c. all other construction equipment must cross on an equipment bridge as specified in section V.B.5.

9. Crossings of Major Waterbodies

Before construction, the project sponsor shall file with the Secretary for the review and written approval by the Director a detailed, site-specific construction plan and scaled drawings identifying all areas to be disturbed by construction for each major waterbody crossing (the scaled drawings are not required for any offshore portions of pipeline projects). This plan should be developed in consultation with the appropriate state and Federal agencies and should include extra work areas, spoil storage areas, sediment control structures, etc., as well as mitigation for navigational issues.

The Environmental Inspector may adjust the final placement of the erosion and sediment control structures in the field to maximize effectiveness.

10. Temporary Erosion and Sediment Control

Install sediment barriers (as defined in section IV.F.2.a. of the Plan) immediately after initial disturbance of the waterbody or adjacent upland. Sediment barriers must be properly maintained throughout construction and reinstalled as necessary (such as after backfilling of the trench) until replaced by permanent erosion controls or restoration of adjacent upland areas is complete. Temporary erosion and sediment control measures are addressed in more detail in the Plan; however, the following specific measures must be implemented at stream crossings:

a. install sediment barriers across the entire construction right-of-way at all waterbody crossings, where necessary to prevent the flow of sediments into the waterbody. Removable sediment barriers (or driveable berms) must be installed across the travel lane. These removable sediment barriers can be removed during the construction day, but must be re-installed after construction has stopped for the day and/or when heavy precipitation is imminent;

b. where waterbodies are adjacent to the construction right-of-way, install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil and sediment within the construction right-of-way; and

c. use trench plugs at all waterbody crossings, as necessary, to prevent diversion of water into upland portions of the pipeline trench and to keep any accumulated trench water out of the waterbody.

11. Trench Dewatering

Dewater the trench (either on or off the construction right-of-way) in a manner that does not cause erosion and does not result in heavily silt-laden water flowing into any waterbody. Remove the dewatering structures as soon as possible after the completion of dewatering activities.

C. RESTORATION

1. Use clean gravel or native cobbles for the upper 1 foot of trench backfill in all waterbodies that contain coldwater fisheries.

2. For open-cut crossings, stabilize waterbody banks and install temporary sediment barriers within 24 hours of completing instream construction

activities. For dry-ditch crossings, complete streambed and bank stabilization before returning flow to the waterbody channel.

3. Return all waterbody banks to preconstruction contours or to a stable angle of repose as approved by the Environmental Inspector.

4. Application of riprap for bank stabilization must comply with COE, or its delegated agency, permit terms and conditions.

5. Unless otherwise specified by state permit, limit the use of riprap to areas where flow conditions preclude effective vegetative stabilization techniques such as seeding and erosion control fabric.

6. Revegetate disturbed riparian areas with conservation grasses and legumes or native plant species, preferably woody species.

7. Install a permanent slope breaker across the construction right-of-way at the base of slopes greater than 5 percent that are less than 50 feet from the waterbody, or as needed to prevent sediment transport into the waterbody. In addition, install sediment barriers as outlined in the Plan.

   In some areas, with the approval of the Environmental Inspector, an earthen berm may be suitable as a sediment barrier adjacent to the waterbody.

8. Sections V.C.3. through V.C.6. above also apply to those perennial or intermittent streams not flowing at the time of construction.

D. POST-CONSTRUCTION MAINTENANCE

1. Limit vegetation maintenance adjacent to waterbodies to allow a riparian strip at least 25 feet wide, as measured from the waterbody's mean high water mark, to permanently revegetate with native plant species across the entire construction right-of-way. However, to facilitate periodic pipeline corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be maintained in a herbaceous state. In addition, trees that are located within 15 feet of the pipeline that are greater than 15 feet in height may be cut and removed from the permanent right-of-way.

2. Do not use herbicides or pesticides in or within 100 feet of a waterbody except as allowed by the appropriate land management or state agency.

VI. WETLAND CROSSINGS

A. GENERAL

1. The project sponsor shall conduct a wetland delineation using the current Federal methodology and file a wetland delineation report with the Secretary before construction. This report shall identify:

   a. by milepost all wetlands that would be affected;

   b. the National Wetlands Inventory (NWI) classification for each wetland;

   c. the crossing length of each wetland in feet; and

   d. the area of permanent and temporary disturbance that would occur in each wetland by NWI classification type.

   The requirements outlined in this section do not apply to wetlands in actively cultivated or rotated cropland. Standard upland protective measures, including workspace and topsoiling requirements, apply to these agricultural wetlands.

2. Route the pipeline to avoid wetland areas to the maximum extent possible. If a wetland cannot be avoided or crossed by following an existing right-of-way, route the new pipeline in a manner that minimizes disturbance to wetlands. Where looping an existing pipeline, overlap the existing pipeline right-of-way with the new construction right-of-way. In addition, locate the loop line no more than 25 feet away from the existing pipeline unless site-specific constraints would adversely affect the stability of the existing pipeline.

3. Limit the width of the construction right-of-way to 75 feet or less. Prior written approval of the Director is required where topographic conditions or soil limitations require that the construction right-of-way width within the boundaries of a federally delineated wetland be expanded beyond 75 feet. Early in the planning process the project sponsor is encouraged to identify site-specific areas where existing soils lack adequate unconfined compressive strength that would result in excessively wide ditches and/or difficult to contain spoil piles.

4. Wetland boundaries and buffers must be clearly marked in the field with signs and/or highly visible flagging until construction-related ground disturbing activities are complete.

5. Implement the measures of sections V. and VI. in the event a waterbody crossing is located within or adjacent to a wetland crossing. If all measures of sections V. and VI. cannot be met, the project sponsor must file with the Secretary a site-specific crossing plan for review and written approval by the Director before construction. This crossing plan shall address at a minimum:

   a. spoil control;

   b. equipment bridges;

   c. restoration of waterbody banks and wetland hydrology;

   d. timing of the waterbody crossing;

   e. method of crossing; and

   f. size and location of all extra work areas.

6. Do not locate aboveground facilities in any wetland, except where the location of such facilities outside of wetlands would prohibit compliance with U.S. Department of Transportation regulations.

B. INSTALLATION

1. Extra Work Areas and Access Roads

   a. Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from wetland boundaries, except where the adjacent upland consists of actively cultivated or rotated cropland or other disturbed land. ***The Company has proposed site specific crossing procedures at wetlands associated with the three perennial waterbody crossings included with the application. These procedures are shown on the same site specific drawings as the five perennial waterbody crossings. These site specific crossing procedures include variances from the setback requirements contained herein. The Company proposes to follow the requirements herein at crossings where site specific plans have not been filed with and approved by the Director of OEP.***

b. The project sponsor shall file with the Secretary for review and written approval by the Director, a site-specific construction plan for each extra work area with a less than 50-foot setback from wetland boundaries (except where adjacent upland consists of actively cultivated or rotated cropland or other disturbed land) and a site-specific explanation of the conditions that will not permit a 50-foot setback.

c. Limit clearing of vegetation between extra work areas and the edge of the wetland to the certificated construction right-of-way.

d. The construction right-of-way may be used for access when the wetland soil is firm enough to avoid rutting or the construction right-of-way has been appropriately stabilized to avoid rutting (e.g., with timber riprap, prefabricated equipment mats, or terra mats).

In wetlands that cannot be appropriately stabilized, all construction equipment other than that needed to install the wetland crossing shall use access roads located in upland areas. Where access roads in upland areas do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction right-of-way.

e. The only access roads, other than the construction right-of-way, that can be used in wetlands without Director approval, are those existing roads that can be used with no modification and no impact on the wetland.

2. Crossing Procedures

a. Comply with COE, or its delegated agency, permit terms and conditions **(see figures Proc-9 and Proc-10)**.

b. Assemble the pipeline in an upland area unless the wetland is dry enough to adequately support skids and pipe.

c. Use "push-pull" or "float" techniques to place the pipe in the trench where water and other site conditions allow.

d. Minimize the length of time that topsoil is segregated and the trench is open.

e. Limit construction equipment operating in wetland areas to that needed to clear the construction right-of-way, dig the trench, fabricate and install the pipeline, backfill the trench, and restore the construction right-of-way.

f. Cut vegetation just aboveground level, leaving existing root systems in place, and remove it from the wetland for disposal.

g. Limit pulling of tree stumps and grading activities to directly over the trenchline. Do not grade or remove stumps or root systems from the rest of the construction right-of-way in wetlands unless the Chief Inspector and Environmental Inspector determine that safety-related construction constraints require grading or the removal of tree stumps from under the working side of the construction right-of-way.

h. Segregate the top 1 foot of topsoil from the area disturbed by trenching, except in areas where standing water is present or soils are saturated or frozen. Immediately after backfilling is complete, restore the segregated topsoil to its original location.

i. Do not use rock, soil imported from outside the wetland, tree stumps, or brush riprap to support equipment on the construction right-of-way.

j. If standing water or saturated soils are present, or if construction equipment causes ruts or mixing of the topsoil and subsoil in wetlands, use low-ground-weight construction equipment, or operate normal equipment on timber riprap, prefabricated equipment mats, or terra mats.

k. Do not cut trees outside of the approved construction work area to obtain timber for riprap or equipment mats.

l. Attempt to use no more than two layers of timber riprap to support equipment on the construction right-of-way.

m. Remove all project-related material used to support equipment on the construction right-of-way upon completion of construction.

3. Temporary Sediment Control

Install sediment barriers (as defined in section IV.F.2.a. of the Plan) immediately after initial disturbance of the wetland or adjacent upland.

Sediment barriers must be properly maintained throughout construction and reinstalled as necessary (such as after backfilling of the trench). Except as noted below in section VI.B.3.c., maintain sediment barriers until replaced by permanent erosion controls or restoration of adjacent upland areas is complete. Temporary erosion and sediment control measures are addressed in more detail in the Plan.

a. Install sediment barriers across the entire construction right-of-way immediately upslope of the wetland boundary at all wetland crossings where necessary to prevent sediment flow into the wetland.

b. Where wetlands are adjacent to the construction right-of-way and the right-of-way slopes toward the wetland, install sediment barriers along the edge of the construction right-of-way as necessary to prevent sediment flow into the wetland.

c. Install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil and sediment within the construction right-of-way through wetlands. Remove these sediment barriers during right-of-way cleanup.

4. Trench Dewatering

Dewater the trench (either on or off the construction right-of-way) in a manner that does not cause erosion and does not result in heavily silt-laden water flowing into any wetland. Remove the dewatering structures as soon as possible after the completion of dewatering activities.

C. RESTORATION

1. Where the pipeline trench may drain a wetland, construct trench breakers and/or seal the trench bottom as necessary to maintain the original wetland hydrology.

2. For each wetland crossed, install a trench breaker at the base of slopes near the boundary between the wetland and adjacent upland areas. Install a permanent slope breaker across the construction right-of-way at the base of a slope(s) greater than 5 percent where the base of the slope is less than 50 feet from the wetland, or as needed to prevent sediment transport into the wetland. In addition, install sediment barriers as outlined in the Plan. In some areas, with the approval of the Environmental Inspector, an earthen berm may be suitable as a sediment barrier adjacent to the

wetland.

3. Do not use fertilizer, lime, or mulch unless required in writing by the appropriate land management or state agency.

4. Consult with the appropriate land management or state agency to develop a project-specific wetland restoration plan. The restoration plan should include measures for re-establishing herbaceous and/or woody species, controlling the invasion and spread of undesirable exotic species (e.g., purple loosestrife and phragmites), and monitoring the success of the revegetation and weed control efforts. Provide this plan to the FERC staff upon request.

5. Until a project-specific wetland restoration plan is developed and/or implemented, temporarily revegetate the construction right-of-way with annual ryegrass at a rate of 40 pounds/acre (unless standing water is present).

6. Ensure that all disturbed areas successfully revegetate with wetland herbaceous and/or woody plant species.

7. Remove temporary sediment barriers located at the boundary between wetland and adjacent upland areas after upland revegetation and stabilization of adjacent upland areas are judged to be successful as specified in section VII.A.5. of the Plan.

D. POST-CONSTRUCTION MAINTENANCE

1. Do not conduct vegetation maintenance over the full width of the permanent right-of-way in wetlands. However, to facilitate periodic pipeline corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be maintained in a herbaceous state. In addition, trees within 15 feet of the pipeline that are greater than 15 feet in height may be selectively cut and removed from the permanent right-of-way.

2. Do not use herbicides or pesticides in or within 100 feet of a wetland, except as allowed by the appropriate land management agency or state agency.

3. Monitor and record the success of wetland revegetation annually for the first 3 years after construction or until wetland revegetation is successful. At the end of 3 years after construction, file a report with the Secretary identifying the status of the wetland revegetation efforts. Include the percent cover achieved and problem areas (weed invasion issues, poor

revegetation, etc.). Continue to file a report annually until wetland revegetation is successful.

4. Wetland revegetation shall be considered successful if the cover of herbaceous and/or woody species is at least 80 percent of the type, density, and distribution of the vegetation in adjacent wetland areas that were not disturbed by construction. If revegetation is not successful at the end of 3 years, develop and implement (in consultation with a professional wetland ecologist) a remedial revegetation plan to actively revegetate the wetland. Continue revegetation efforts until wetland revegetation is successful.

VII. HYDROSTATIC TESTING

A. NOTIFICATION PROCEDURES AND PERMITS

1. Apply for state-issued water withdrawal permits, as required.

2. Apply for National Pollutant Discharge Elimination System (NPDES) or state-issued discharge permits, as required.

3. Notify appropriate state agencies of intent to use specific sources at least 48 hours before testing activities unless they waive this requirement in writing.

B. GENERAL

1. Perform 100 percent radiographic inspection of all pipeline section welds or hydrotest the pipeline sections, before installation under waterbodies or wetlands.

2. If pumps used for hydrostatic testing are within 100 feet of any waterbody or wetland, address the operation and refueling of these pumps in the project's Spill Prevention and Response Procedures.

3. The project sponsor shall file with the Secretary before construction a list identifying the location of all waterbodies proposed for use as a hydrostatic test water source or discharge location.

C. INTAKE SOURCE AND RATE

1. Screen the intake hose to prevent entrainment of fish.

2. Do not use state-designated exceptional value waters, waterbodies which provide habitat for federally listed threatened or endangered species, or waterbodies designated as public water supplies, unless appropriate Federal, state, and/or local permitting agencies grant written permission.

3. Maintain adequate flow rates to protect aquatic life, provide for all waterbody uses, and provide for downstream withdrawals of water by existing users.

4. Locate hydrostatic test manifolds outside wetlands and riparian areas to the maximum extent practicable.

D. DISCHARGE LOCATION, METHOD, AND RATE

1. Regulate discharge rate, use energy dissipation device(s), and install sediment barriers, as necessary, to prevent erosion, streambed scour, suspension of sediments, or excessive streamflow **(see figure Proc-11)**.

2. Do not discharge into state-designated exceptional value waters, waterbodies which provide habitat for federally listed threatened or endangered species, or waterbodies designated as public water supplies, unless appropriate Federal, state, and local permitting agencies grant written permission.

APPENDIX D

WIC'S RECLAMATION PLAN

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RECLAMATION PLAN - PICEANCE BASIN EXPANSION

1.0 INTRODUCTION

Reclamation of the Piceance Basin Expansion Pipeline right-of-way will involve a variety of problems resulting from soil conditions, sensitive plant communities, harsh weather conditions and repeated disturbance. While Wyoming Interstate Company (WIC) has adopted the Federal Energy Regulatory Commission's Upland Erosion Control, Revegetation, and Maintenance Plan (FERC 1/17/2003 Version), a site-specific reclamation plan is also needed.

This Reclamation Plan has been developed by Bio-Resources, Inc., in coordination with regional soil reclamation experts, wetlands and vegetation specialists, the Federal Energy Regulatory Commission (FERC) local Natural Resource Conservation Service (NRCS) and Bureau of Land Management (BLM) offices, and the Colorado State Board of Land Commissioners.

Specifications included in this Reclamation Plan are intended to supplement the general FERC guidelines, which will remain in effect for this project, but the specifications in the Reclamation Plan will supercede those guidelines where they are contradictory. *Specifications that differ from the FERC guidelines are indicated in underlined italics.*

WIC, through its pipeline contractor, will have overall responsibility for the reclamation effort. WIC will require the pipeline contractor to subcontract the revegetation effort to a qualified revegetation contractor with local experience. All seedbed preparation after topsoil replacement will be performed by the revegetation contractor, who will be responsible for all discing, seeding, application of fertilizer and/or manure, mulching, crimping, etc.

2.0 SOIL MANAGEMENT

2.1 CLEARING, GRADING, TOPSOILING

Unless otherwise specified, the right-of-way width will be 85 feet. Exceptions include right-of-way widths of 75 feet or less in wetland areas and right-of-way widths greater than 85 feet in specified extra work areas. At some of the stream and creek crossings, the right-of-way width may be limited to save riparian trees.

In shrubby or brushy areas, the right-of-way will be mowed with a bush hog or similar implement before any grading or topsoiling is done.

In areas where the ground is naturally level, the working and spoil sides of the right-of-way will not be cut or graded. Skimming with a maintainer (moving no more than 2 inches of topsoil) may be done with the concurrence of the environmental inspector. To eliminate uneven soils around the base to plants to provide a smooth driving surface. The intention is to leave the topsoil, with its bank of native seeds, as undisturbed as possible.

In naturally level areas, topsoil will be separated up to one foot in depth along the ditch line only. Topsoil from the ditch line will be placed immediately next to the ditch line on the working side, and will be leveled and compacted in a lift located under the skids and string of pipe. If soil conditions become pulverized or powdered out by construction vehicles to a depth of 4 inches or greater, and the pulverized soils are being lost off the ROW from wind or mixed with subsoils, the EI or federal compliance monitor will direct WIC to change operations and begin salvaging topsoil from the working side as further described below.

Where right of way grading is necessary, topsoil will be segregated no less than 6 inches and no more than 12 inches where topsoil is available. In general, if topsoil is present at all, a 6-inch salvage is necessary to capture topsoil. A lesser depth would involve too small a volume of soil, which could be easily lost. The native seed base is contained in the top 12 inches of topsoil. Removal of deeper topsoil would dilute this seed base and slow the return of native vegetation. Further, most soils along the project are between 6 and 12 inches in depth.

Separation of salvaged topsoil and subsoil will be maintained throughout all construction activities.

Segregated topsoil may not be used for padding the pipe.

Segregated topsoil in wind prone areas will be sprayed with water or an approved tacifier to form a crust to minimize soil losses due to wind blown transport of topsoil.

2.2 Contouring, Decompaction, Topsoil Replacement

Cleanup operations should commence immediately following backfill. The right-of-way will be restored to its natural contours. *If compaction has occurred on the working side or other parts of the right-of-way, it should be ripped to a depth no greater than 12 inches.* In places where topsoil has been segregated, the subsoil will be ripped before replacing the topsoil.

Final grading, decompaction, topsoil replacement, and installation of permanent erosion control structures must be completed within 20 days of backfill.

2.3 Rock

Where necessary, surface rock will be removed from the trench or right-of-way and stockpiled along the edge of the work areas. During cleanup, salvaged surface rock will be spread to blend with off-right-of-way areas, to conceal the corridor from adjacent undisturbed areas and to act as a mulch to minimize erosion. If spreading rock over the right-of-way will prevent the safe operation and maintenance of the pipeline, *or if it will hamper successful reclamation*, it will be removed and properly disposed. Rock may be stockpiled on the right-of-way edge near existing roads *if directed by the EI or federal compliance monitor* to keep the public from driving on the right-of-way.

Rock excavated from the trench may be used to backfill the trench only to the top of the existing bedrock profile. Rock that is not returned to the trench should be considered

construction debris, unless it is approved for use as mulch (in areas with surface rock), or for some other use on the construction work areas by the landowner or land managing agency.

2.4 Cropland and Irrigated Pasture or Hayland

Ditch line topsoiling, rather than full right-of-way topsoiling, will be used on cropland and irrigated pasture or hayland, with the written approval of the landowner or land managing agency. This is a variance to the FERC plan, and is suggested as a way to eliminate as much soil handling as possible to minimize mixing, loss and wind erosion.

If rutting exceeds 4 to 6 inches in depth, significantly increasing the chance of topsoil mixing with subsoils, work will continue and the rutted area will be covered with at least an adequate volume of new topsoil to replace mixed soils and subsoils, such topsoil purchased in the immediate vicinity, another variance from the FERC Plan. This variance would allow for continuation of construction during inclement weather at the cost of supplying new topsoil. This departure from the FERC Plan will not apply to rangeland.

Topsoil and subsoil will be tested for compaction at regular intervals with a penetrometer or other appropriate device. Compaction on the right-of-way should approximate the compaction level in adjacent undisturbed areas. Severely compacted agricultural land will be plowed with a paraplow or other deep tillage implement. Where topsoil has been segregated, the subsoil will be plowed before replacing the topsoil.

Excess rock will be removed from at least the top 12 inches of soil in all actively cultivated or rotated croplands and pastures, hayfields, and residential areas, as well as other areas at the landowner's request. The size, density, and distribution of rock on the right-of-way should be similar to adjacent areas not disturbed by construction.

Trench breakers will be installed in both sides of the trench at irrigation ditches to prevent channeling of irrigation water along the trench.

In irrigated pasture, after the pipe is placed in the ditch, the following criteria must be used for backfill and compaction:

- Granular material will be placed on both sides of the pipe up to approximately the top of the pipe.
- Granular material will be water-settled by jetting or directing high pressure nozzles at the material to insure it is "washed" around the bottom half of the pipe.
- Backfill material (18 to 24 inches measured from top of pipe) will be placed in the ditch and leveled to allow compaction equipment to operate. Water will be added to the backfill material as necessary to achieve optimum compaction. The compaction equipment may be "wacker" packers, flat vibratory plates that are stand alone or mounted on a backhoe, or "sheepsfoot" rollers (either vibratory or non-vibratory). Extra care must be taken to avoid direct contact of the pipe with

backfilling, leveling, or compacting equipment. The "aim" density is 92 to 95 percent.

- Additional lifts must be limited to a maximum of 12 inches. If compaction is not acceptable, the lifts will be reduced to 8 inches.

- Topsoil will be restored and the right-of-way leveled to blend topographically with the adjacent undisturbed fields. Irrigation will be restored over the right-of-way.

3.0 SEEDING

3.1 Seeding Dates

NRCS-recommended seeding dates for the route of the Piceance Basin Expansion are October 1 to May 1 (Oct. 15 to May 1 in some areas). *However, WIC plans to seed whenever the cleanup is complete, even if it is not in the recommended seeding season. This will permit establishment of at least some seed, and does not relieve WIC of its responsibility to achieve acceptable reclamation after construction. WIC will mulch all areas seeded outside the recommended season, at mulch rates described below for seeded areas.* This variance will be implemented only if the NRCS and BLM offices in affected areas have approved of this out-of-season seeding proposal. This determination will need to be made on a site specific basis by BLM. For example, if the clean up reclamation happens very late in the season during muddy and frozen soil conditions, WIC will be able to do no more than temporary stabilization in the form of temporary erosion control structures and mulch. Final decompaction and grading would likely wait until the following summer and then seeding the ROW that fall.

Seeding and mulching shall be completed within 12 working days (14 calendar days) of final grading, weather permitting.

3.2 Seedbed Preparation

Decompaction of the right-of-way (ripping) will be done by the cleanup crew. The seeding crew, however, may encounter surface compaction due to the use of a driving lane after cleanup, or to surface crusting of some soils after rain. There may also be clods left by ripping. The revegetation contractor should be equipped with discs or other tillage implements to deal with these conditions and provide a firm seedbed to a depth of 3 to 4 inches.

Unnecessary discing should be avoided, since it is desirable to leave as much natural vegetation intact as possible.

3.3 Drilling and Broadcasting

Drill seeding is the preferred method. The drill should be a reclamation-type drill, equipped with depth bands and with seedbox agitators and monitors capable of handling mixes of native seed species. One-half inch planting depth will be standard, with 6 to 10 inch drill spacing.

Seed may be broadcast rather than drilled in terrain where drilling is unsafe or impractical. Seed must be broadcast at double the drilling rate. Hand-operated or mechanically-powered cyclone type broadcasters should be used. Broadcast seed should be lightly covered or pressed into the soil with a cultipacker, roller, or sheep's-foot. Where such implements cannot be practically used, seed may be incorporated with a chain drag or by hand raking.

3.4 Seed Mixes

Seed mixes and seeding rates for the Piceance Basin Expansion are listed in Appendix A. The Moffat County mixes are not yet NRCS approved; these will be finalized prior to January 15, 2005. Seed mixes by milepost are listed in Table 1.

Table 1
Seed Mixes by Milepost on the Piceance Basin Expansion

Milepost	Distance	Source	Site Characterization	County	Seed Mix
0.0-20.5	20.5	BLM	Sagebrush	Sweetwater	1
20.5-21.8	1.3	BLM	Salt Desert Shrub	Sweetwater	3
21.8-50.2	28.4	BLM	Sagebrush	Sweetwater	1
50.2-51.9	1.7	BLM	Pinyon-Juniper	Sweetwater	2
51.9-53.5	1.6	NRCS	Loamy Foothills/Clayey Foothills	Moffat	4
53.5-54.2	0.7	NRCS	Sandy Soils	Moffat	5
54.2-55.4	1.2	NRCS	Loamy Foothills/Clayey Foothills	Moffat	4
55.4-56.2	0.8	NRCS	Sandy Soils	Moffat	5
56.2-66.9	9.9	NRCS	Loamy Foothills/Clayey Foothills	Moffat	4
66.1-66.4	0.3	NRCS	Sandy Soils	Moffat	5
66.4-72.9	6.5	NRCS	Loamy Foothills/Clayey Foothills	Moffat	4
72.9-74.1	1.2	NRCS	Sandy Soils	Moffat	5
74.1-75.9	1.8	NRCS	Loamy Foothills/Clayey Foothills	Moffat	4
75.9-76.2	0.3	NRCS	Sandy Soils	Moffat	5
76.2-83.9	7.7	NRCS	Loamy Foothills/Clayey Foothills	Moffat	4
83.9-87.2	3.3	NRCS	Sandy Soils	Moffat	5
87.2-88.0	0.8	NRCS	Loamy Foothills/Clayey Foothills	Moffat	4
88.0-93.2	5.2	NRCS	Sandy Soils	Moffat	5
93.2-110.4	17.2	NRCS	Loamy Foothills/Clayey Foothills	Moffat	4
110.4-127.0	16.6	NRCS	Range below 7000'	Rio Blanco	6
127.0-128.3	1.3	NRCS	Riparian	Rio Blanco	7
128.3-136.5	8.2	NRCS	Range below 7000'	Rio Blanco	6
136.5-141.7	5.2	NRCS	Range above 7000'	Rio Blanco	8

Irrigated hayland and irrigated pasture will likely be seeded with mixes stipulated by the landowners. If there are no such stipulations, Mix 9 (Appendix A) will be used. Note: Mix 9 is actually two mixes, a grass mix and alfalfa. One or the other, not both, should be used at the listed drilling rates. If a landowner wishes to mix the grass and alfalfa, drilling rates should be adjusted accordingly.

In actively cultivated cropland, seeding is not required unless requested by the landowner.

A total of 2.4 miles of land enrolled in the Conservation Reserve Program (CRP) occurs in six locations along the Piceance Line (Table 2). As specified in Table 2, Mixes 10-14 will be used on these lands (Appendix A).

Table 2
Conservation Reserve Lands (CRP) located on the Piceance Basin Expansion

Milepost	Distance, miles	Comment
117.9-118.15	0.25	Seed mix 11, Vandiver
120.25-120.45	0.2	Seed mix 12, Barton
121.5-121.9	0.4	Seed mix13, Byerly
121.9-122.4	0.5	Seed mix 14, Etchart
123.7-124.5	0.8	Seed mix15, Lake
125.5-125.75	0.25	Seed mix 15, Lake
Total	**2.4 miles**	

Mixes 1, 2 and 5 contain big sagebrush. The BLM has stipulated that the sage seed will be spread independently of the rest of the seed mix. WIC intends to broadcast the sage seed ahead of the drill that plants the rest of the seed mix. The drill for these mixes will be equipped with a cultipacker. When the drill goes over the broadcast sage seed, the drill discs and the cultipacker will incorporate the seed into the soil. Sage seed will be broadcast at double the drilling rate. On state of Colorado lands, 0.75 PLS/acre of sage will be used, rather than the quantities called for in the seed mixes. The locations of State of Colorado lands are given in Table 3.

Table 3
State of Colorado Trust Lands Located on the Piceance Basin Expansion

Milepost	Distance, miles
53.9-54.4	0.5
58.15-59.15	1.0
70.5-71.85	1.35
85.85-87.5	1.65
88.3-88.85	0.55
89.15-91.9	2.75
94.8-94.95	0.15
101.8-102.1	0.3
131.8-134.3	2.5
134.75-135.4	0.65
TOTAL	**11.4**

Certified, blue-tagged seed shall be supplied where a named variety is specified. Vendor shall indicate on the bid whether certified or common seed is being offered, as well as the origin of the seed. The blue tags which are removed to mix the seed shall be given to the revegetation contractor and the environmental inspector; in addition, mix tags showing the weighted averages of the ingredients shall be attached to each bag. As the bags are used, the crew will save the mix tags and turn them over to the environmental inspector.

The environmental inspector will sample seed in the following way:

- For lots of 1 to 6 bags, each bag will be sampled.
- For lots of more than 6 bags, samples will be taken from 5 bags plus at least 10 percent of the total number of bags.

Samples will be obtained by plunging the hand into different areas of the bags to extract a handful of seeds. Seeds will be placed into sample bags and labeled. Mix tags and seed samples will be kept stored and available for analysis for five years.

4.0 MULCH

Mulch will be applied mulch on all slopes over 5 percent (except in actively cultivated cropland) concurrent with or immediately after seeding. The mulch to be used will be certified weed-free straw or hay.

Mulch will be spread uniformly to cover at least 75 percent of the ground surface at a rate of *1.5 tons/acre. The rate of 1.5 tons/acre is a slight variance to the standard of 2 tons/acre. However, in our experience 1.5 tons/acre does give at least a 75 percent ground cover, providing equal protection to the resource. A rate of 2 tons/acre tends to form a matted thatch that does not crimp easily; 1.5 tons/acre does crimp well, and so provides a greater protection to the resource.*

Mulch will be crimped into the soil with a Finn crimper or similar implement.

WIC will mulch all areas seeded outside the recommended season, including level ground. In other words, all areas seeded before October 1.

5.0 WETLANDS, RIPARIAN AREAS

Reclamation guidelines specified in the Wetland and Waterbody Construction and Mitigation Procedures (FERC 1/17/2003 Version) will be implemented in the construction right-of-way within wetland areas.

5.1 SEEDING

The riparian area in Rio Blanco County, from MP 127.0 to MP 128.3, will be seeded with Mix 8.

Streambanks, wetlands, or riparian areas with predominantly upland vegetation will be seeded with the mixes called for in Table 1 for those areas.

Streambanks, wetlands, and riparian areas with standing water or predominantly hydrophilic vegetation will be allowed to revegetate naturally; that is, they will not be seeded.

5.2 Trees and Shrubs

Unless blading is required to level the right-of-way to create a safe working area, the contractor will limit pulling of tree stumps and grading to directly over the trenchline. On the rest of the right-of-way, trees and shrubs will be cut just above ground level, leaving existing root systems in place. Small woody and herbaceous vegetation may also be mowed or crushed to clear the right-of-way.

Where required by FERC, BLM, or U. S. Army Corps of Engineers (COE) permit conditions, tree cuttings, containerized plants, or transplants, will be used to restore woody plant communities, stabilize riparian areas, and provide a visual screens to conceal the right-of-way. Potential species include willow, cottonwood, and aspen. Willow species will be planted as non-rooted cuttings; cottonwood as rooted cuttings. Tree cuttings will be obtained from adjacent areas within the surveyed corridor that were identified and approved by the land-management agency. Locally obtained tree cuttings will be used to ensure that plants are adaptable to the environment

Tree cuttings will be between 16 and 24 inches long and obtained during the dormant season (February to May) and planted within two weeks of cutting, or stored under refrigeration, until needed.

Willow and aspen cuttings will be spaced with an average of 10 feet/center; cottonwoods will be spaced as 15 feet/center. Plantings will be randomly placed to promote a natural distribution, but the recommended average plant density will be maintained. Species will not be planted within 10 feet either side of the pipeline.

Tree cuttings will be inserted into the ground approximately 6 inches and will be covered with a fine plastic netting to deter browsing.

6.0 MONITORING

Follow-up inspections will be conducted after the first and second growing seasons to determine the success of revegetation. If plant density and cover are insufficient, seeding efforts will continue until revegetation is successful, with continued monitoring for a five year period..

Revegetation shall be considered successful if upon visual survey the density and cover of non-nuisance vegetation is similar to that of adjacent undisturbed areas. If revegetation is a success, a final inspection will be made in the fifth year following reclamation.

7.0 REFERENCES

Federal Energy Regulatory Commission, (FERC), Office of Pipeline Regulation. *Upland Erosion Control, Revegetation, and Maintenance Plan, 1/17/2003 Version.*

Federal Energy Regulatory Commission, (FERC), Office of Pipeline Regulation. *Wetland and Waterbody Construction and Mitigation Procedures, 1/17/2003 Version.*

RECLAMATION PLAN APPENDIX A
SEED MIXES
PICEANCE BASIN EXPANSION

MIX 1 Piceance Basin Expansion Project Wyoming Mix 1 (WM#1) Sagebrush Communities Seeding Mix		
Species	**Seeding Rate in Lbs/acre/PLS [a/]**	
	Drilled	**Broadcast**
Thickspike wheatgrass-Critana	4	8
Indian ricegrass-Nezpar	2	4
Western wheatgrass-Rosana	2	4
Needleandthread	2	4
Big sagebrush-Wyoming [b/]	0.5	1
Gardner's saltbush	1	2
Total	**11.5**	**23**
a/ Seeding mix may be modified based on site-specific conditions, identification of additional species for rapid site stabilization, species success in other restoration efforts, and seed availability. An alterative seeding rate may be used if the mixture is modified, if the BLM modifies the rate, or a landowner requests an alternative seeding rate. b/ Big sagebrush seed will be spread independently of the rest of the seed mix to promote germination.		

Alternative species that may be used in this mix include bottlebrush squirreltail, shadscale, slender wheatgrass, fourwing saltbush, scarlet globemallow, and Lewis' flax.

MIX 2 Piceance Basin Expansion Project Wyoming Mix 2 (WM#2) Juniper Woodland Community Seeding Mix		
Species	**Seeding Rate in Lbs/acre/PLS [a/]**	
	Drilled	**Broadcast**
Western wheatgrass-Rosana	4	8
Indian ricegrass-Nezpar	2	4
Thickspike wheatgrass-Critana	2	4
Slender wheatgrass-Pryor	2	4
Big sagebrush-Wyoming [b/]	0.5	1
Serviceberry	1	2
Total	**11.5**	**23**
a/ Seeding mix may be modified based on site-specific conditions, identification of additional species for rapid site stabilization, species success in other restoration efforts, and seed availability. An alterative seeding rate may be used if the mixture is modified, if the BLM modifies the rate, or a landowner requests an alternative seeding rate. b/ Big sagebrush seed will be spread independently of the rest of the seed mix to promote germination.		

Alternative species that may be used in this mix include bluebunch wheatgrass, green needlegrass, Great Basin wildrye, antelope bitterbrush, snowberry, and Lewis' flax.

MIX 3 Piceance Basin Expansion Project Wyoming Mix 3 (WM#3) Salt Desert Scrub Community Seeding Mix		
Species	Seeding Rate in Lbs/acre/PLS a/	
	Drilled	Broadcast
Western wheatgrass-Rosana	4	8
Slender wheatgrass-Pryor	2	4
Indian ricegrass-Nezpar	2	4
Bottlebrush squirreltail	2	4
Gardner's saltbush	1	2
Common winterfat	1	2
Total	**12**	**24**
a/ Seeding mix may be modified based on site-specific conditions, identification of additional species for rapid site stabilization, species success in other restoration efforts, and seed availability. An alterative seeding rate may be used if the mixture is modified, if the BLM modifies the rate, or a landowner requests an alternative seeding rate.		

Alternative species that may be used in this mix include needleandthread, Indian ricegrass, and scarlet globemallow.

MIX 4 Moffat County Mix for Loamy and Clay Foothills			
Species	Variety		Seed Rate (drilled PLS/acre)
	1st Option	2nd Option	
Western Wheatgrass			4
Green Needlegrass			2
Needle and Thread			1
Thickspike Wheatgrass			1.5
Indian Ricegrass			1
Streambank Wheatgrass			0.75
Muttongrass			0.5
Junegrass			0.75
Total			**11.5**
This mix has not been NRCS approved; it will be finalized prior to January 15, 2005.			

MIX 5 Moffat County Sandy Soils			
Species	Variety		Seed Rate (drilled PLS/acre)
	1st Option	2nd Option	
Indian Ricegrass			2.5
Needle and Thread			2
Nevada Bluegrass			1
Prairie Junegrass			1
Great Basin Wildrye			1
Bluebunch Wheatgrass			0.25
Wyoming Big Sage			3
Antelope Bitterbrush			0.25
Total			**11.0**
This mix has not been NRCS approved; it will be finalized prior to January 15, 2005.			

MIX 6 Rio Blanco County Seed Mix for Range, Irrigated Land and Riparian Areas below 7,000 ft and South & West Slopes above 7,000 ft		
Species	% of mixture	Pounds/PLS/Acre
Western Wheatgrass	Barton	2.4 lbs/acre
Bluebunch Wheatgrass	Secar	2.8 lbs/acre
Slender Wheatgrass	San Luis	1.2 lbs/acre
Prairie Junegrass	Koma	0.4 lbs/acre
Indian Wheatgrass	Nezpar	0.6 lbs/acre
Sandberg Bluegrass	Canbar	0.2 lbs/acre
Intermediate Wheatgrass	Luna	3.6 lbs/acre
Smooth Bromegrass	Lincoln	2.0 lbs/acre
Total Pounds PLS/Acre		**13.2**
*If named varieties are not available for native species, unnamed collected native seed may be available through native seed companies		

MIX 7 Rio Blanco County Seed Mix for Riparian Areas		
Species	Variety	Pounds PLS/Acre
Redtop	Streaker	0.2 lbs/acre
Reed Canary Grass	Ioreed	1.4 lbs/acre
Canada Bluegrass	Poco	1.2 lbs/acre
Alkali Sacaton	Salado	0.6 lbs/acre
Streambank Wheatgrass	Sodar	4.4 lbs/acre
Total Pounds PLS/Acre		**7.8**

MIX 8 Rio Blanco County Seed Mix for Range, Irrigated Land and Riparian Areas above 7,000 ft and North & East Slopes below 7,000 ft		
Species	**Variety**	**Pounds/PLS/Acre**
Arizona Fescue	Redondo	0.8 lbs/acre
Western Wheatgrass	Barton	2.4 lbs/acre
Mountain Bromegrass	Bromar	3.8 lbs/acre
Letterman's Needlegrass	ACLE9	1.6 lbs/acre
Intermediate Wheatgrass	Amur	4.0 lbs/acre
Smooth Bromegrass	Manchar	2.0 lbs/acre
Total Pounds PLS/Acre		**14.6**

MIX 9 Rio Blanco County Seed Mix for Irrigated Hayland and Irrigated Pasture		
Species	**Variety**	**Pounds PLS/Acre**
Timothy	Climaz	1.4 lbs/acre
Orchardgrass	Latar	2.6 lbs/acre
Smooth Bromegrass	Lincoln	8.6 lbs/acre
Total Pounds PLS/Acre		**12.6**
Alfalfa		16.0 lbs/acre
Total Pounds PLS/Acre		**16.0**
*Two seed mixtures are provided to meet the needs of landowners who produce either grass or alfalfa hay. Landowners should be contacted to determine which mix		

MIX 10 Rio Blanco County Seed Mix for Vandiver CRP Land		
Species	**Variety**	**Pounds/PLS/Acre**
Crested Wheatgrass	Fairway	0.6 lbs/acre
Intermediate Wheatgrass	Luna	2.3 lbs/acre
Crested Wheatgrass	Nordan	0.8 lbs/acre
Alfalfa	Spreader II	0.6 lbs/acre
Smooth Bromegrass	Manchar	1.6 lbs/acre
Total Pounds PLS/Acre		**5.9**

MIX 11 Rio Blanco County Seed Mix for Barton CRP Land		
Species	**Variety**	**Pounds/PLS/Acre**
Thickspike Wheatgrass	Critana	1.1 lbs/acre
Streambank Wheatgrass	Sodar	0.6 lbs/acre
Western Wheatgrass	Arriba	0.8 lbs/acre
Alfalfa	Ladak	0.8 lbs/acre
Great Basin Wildrye	Magnar	0.6 lbs/acre
Slender Wheatgrass	San Luis	0.6 lbs/acre
Bluebunch Wheatgrass	Secar	1.0 lbs/acre
Cicer Milkvetch	Monarch	0.7 lbs/acre
Total Pounds PLS/Acre		**6.2**

MIX 12 Rio Blanco County Seed Mix for Byerly CRP Land		
Species	**Variety**	**Pounds/PLS/Acre**
Crested Wheatgrass	Nordan	1.3 lbs/acre
Tall Wheatgrass	Jose	1.1 lbs/acre
Alfalfa	Spreader II	1.0 lbs/acre
Smooth Bromegrass	Lincoln	2.6 lbs/acre
Total Pounds PLS/Acre		**6.0**

MIX 13 Rio Blanco County Seed Mix for Etchart CRP Land		
Species	**Variety**	**Pounds/PLS/Acre**
Intermediate Wheatgrass	Oahe	3.5 lbs/acre
Crested Wheatgrass	Nordan	2.0 lbs/acre
Alfalfa	Spreader II	1.0 lbs/acre
Total Pounds PLS/Acre		**6.5**

MIX 14 Rio Blanco County See Mix for Lake CRP Land		
Species	**Variety**	**Pounds/PLS/Acre**
Tall Wheatgrass	Jose	2.8 lbs/acre
Intermediate Wheatgrass	Luna	4.5 lbs/acre
Crested Wheatgrass	Nordan	1.3 lbs/acre
Total Pounds PLS/Acre		**8.6**

APPENDIX E

WIC'S HYDROSTATIC TEST PLAN

THIS PLAN IS PART OF THE BLM'S DRAFT PLAN OF DEVELOPMENT (POD). SECTIONS OF (OR ATTACHMENTS TO) THE POD REFERENCED IN THIS PLAN ARE NOT INCLUDED IN THIS APPENDIX.

APPENDIX E
HYDROSTATIC TEST PLAN

INTRODUCTION

Wyoming Interstate Company, Ltd. (WIC) is proposing to construct a new 24" O.D. natural gas pipeline, extending from the existing Greasewood Compressor Station in Section 8, Township 2 South, Range 96 West, Rio Blanco County, Colorado, northerly to the existing Wamsutter Compressor Station in Section 27, Township 20 North, Range 94 West, Sweetwater County, Wyoming. Once constructed, in order to ensure compliance with U.S. Department of Transportation regulations, WIC must pressure test this line to a level of 1.25 of its proposed maximum allowable operating pressure. For this project, WIC plans to hydrostatically test the completed pipeline, using water pressured to the appropriate level.

WATER SOURCES

WIC proposes to obtain water for testing from the following sources:

Source	Location (MP)	Volume Withdrawn (gallons)	Volume Withdrawn (acre feet)	Maximum Withdrawal Rate (gallons per minute)	Duration of Use
White River	127.7	2,417,290	7.4	2,500	Max 90 days
Yampa River	87.6	2,877,250	8.8	2,500	Max 90 days
Little Snake River	53.1	5,477,460	16.8	2,500	Max 90 days
Total Withdrawal		**10,772,000**	**33.0**		

All water will be discharged within the same basin from which it is taken. During the filling of the pipe, the water intake at the location where water is being taken will be screened to prevent entrainment of fishes from the river. The intake will be set to avoid sedimentation and the rate of extraction will ensure a continued flow in the river, up to 2,500 gallons per minute. Water will be drawn out with a low pressure pump pumping into the suction side of a high pressure pump that moves water into the pipeline. All pumps will be set into fuel/oil containment areas. Any additional restrictions issued by the Federal Energy Regulatory Commission on behalf of the U.S. Fish and Wildlife Service will be observed where water is withdrawn. Withdrawal will likely begin between October 1 and November 15, 2005. Discharge should be complete by February 15, 2006.

TESTING

Water will be used for no more than three months. During this time, the water will be cascaded between test sections of pipe. Discharges will occur at the locations described below. Prior to testing, pipe has been inspected and welds have been x-rayed. In the unlikely event that there should there be an accidental release due to pipe or valve failure, the location of the release will be contained as quickly as practicable and, once the facility has been repaired and retested, the damaged area will be recontoured and reclaimed in compliance with the Reclamation Plan.

DISCHARGE

Once the pipe has been tested and the water is no longer needed, the water will be discharged in a vegetated upland area within the same drainage basin where the water was withdrawn. Discharges will occur at the following locations:

Currently Proposed Hydrostatic Test Water Discharges for the Piceance Basin Expansion					
Milepost	Expected Discharge Volume (gallons)	Expected Discharge Volume (acre feet)	Water Source	Drainage Basin Receiving Discharge	Water Disposal Site
19.6	3,696,500	11.3	Little Snake	Little Snake	Open Ground
50	397,890	1.2	Little Snake		Open Ground
64.42	1,356,170	4.2	Little Snake		Open Ground
TOTAL	***5,477,460***	***16.8***			
87.52	31,400	0.1	Yampa	Yampa	Open Ground
87.79	1,48,600	4.6	Yampa		Open Ground
98.96	1,358,250	4.2	Yampa		Open Ground
TOTAL	***2,877,250***	***8.8***			
115.82	1,458,890	4.5	White River	White	Open Ground
127.55	31,400	0.1	White River		Open Ground
132.25	55,4000	0.2	White River		Open Ground
134.98	200,100	0.6	White River		Open Ground
136.17	671,500	2.1	White River		Open Ground
TOTAL	***2,417,290***	***7.4***			
Overall Total	10,772,000	33.0			

The pipe for Piceance Basin Expansion will be new. Typically, hydrostatic test water will pick up some iron oxide (rust) from new pipe, depending on the total duration the water remains in the pipe. The quantity is likely to be fairly small and may give the discharge water a slight red color. The water also may pick up some sand or dirt left over from the installation. While night caps are always installed after a days work, dirt may still find its way into the pipe. All hydrostatic test water will be discharged through a hay or straw bale dissipation device to slow down the velocity and to help pick up solids (Procedure 11, Appendix 1-D, Resource Report 1). Any contaminants in the discharge water will likely be below the required minimums. To ensure this conclusion, water will be collected and tested at a certified water testing laboratory. For this reason there is no plan to use any chemical treatment of the hydrostatic test water. The only physical treatment for the water will be the hay or straw bale dissipation device. The discharge locations will be into upland grassy areas to help avoid erosion issues. Water will be discharged into the basin from which it is extracted. However, WIC expects that mitigation for water usage will include a form of compensation for water lost during testing from these basins.

APPENDIX F

WIC'S WATERBODY CROSSING PLAN

THIS PLAN IS PART OF THE BLM'S DRAFT PLAN OF DEVELOPMENT (POD). SECTIONS OF (OR ATTACHMENTS TO) THE POD REFERENCED IN THIS PLAN ARE NOT INCLUDED IN THIS APPENDIX.

APPENDIX F
MAJOR WATERBODY CROSSING PLAN
WYOMING INTERSTATE COMPANY

PICEANCE BASIN EXPANSION PROJECT
MOFFAT and RIO BLANCO COUNTIES, COLORADO
and
SWEETWATER COUNTY, WYOMING

APPENDIX F
MAJOR WATERBODY CROSSING PLAN

1.0 INTRODUCTION

Wyoming Interstate Company (WIC) proposes to cross four perennial streams in the State of Colorado, the Little Snake (MP 53.1), the Yampa (MP 87.6), and the White Rivers (MP 127.7) and the Dry Fork Piceance Creek (MP 135.0). Due to federal (Army Corps of Engineers, US Fish and Wildlife Service) and state (Colorado Division of Wildlife, Colorado State Land Board) concerns and construction requirements, a crossing plan for each of the major perennial streams is presented below.

1.1 RIVER CLASSIFICATION

Four perennial streams are crossed by the proposed route of the Piceance Basin Expansion, all within Colorado. One of these streams - the Dry Fork Piceance Creek - is less than 10 feet in width and will not be considered in this plan. Of the other perennial streams, two exceed 10 feet in width - the Little Snake (approximately 40 feet) and the White River (approximately 75 feet). One stream exceeds 100 feet in width - the Yampa River (approximately 140 feet). The Yampa is classified as a warmwater fishery; the White and Little Snake Rivers and the Dry Fork Piceance Creek are classified as coldwater fisheries.

1.1.1 Sport Fisheries

The State of Colorado does not designate any of the streams in Colorado as either commercial or sport fisheries. Nevertheless, the Little Snake has a few sport fishes below Baggs, Wyoming, east (upstream) of the proposed crossing. The Yampa supports small mouth bass and northern pike in the vicinity of the proposed crossing, the White River supports whitefish and brown trout at its crossing, and the Dry Fork Piceance Creek supports brook trout when its waters are flowing (Brad Petch, CDOW, Meeker, CO, 970-878-6090, personal communication, 11-23-04).

1.1.2 Species of Special Concern

Fisheries of special concern occur in the Little Snake, Yampa and White Rivers include the Colorado pikeminnow (*Ptychocheilus lucius*) humpback chub (*Gila cypha*), bonytail chub (*Gila elegans*), and razorback sucker (*Xyrauchen texanus*), all federally listed endangered species that inhabit warmwater fisheries.

Colorado Pikeminnow

The Colorado pikeminnow is an endangered species in the Upper Colorado River Basin. Regarding the streams the proposed pipeline crosses (based on a report for the Uinta Basin Lateral), at the Little Snake River the only record of pikeminnow was at the river's confluence with the Yampa River, far distant from the proposed crossing (Valdez 1991). The FWS does not include the Little Snake as part of this fish's current distribution nor is this river included in its recovery goals. At the Yampa River, the pikeminnow is found

from Craig, Colorado, west to the confluence with the Green River in Utah. At the White River, the pikeminnow is found below the Taylor Draw Dam, just east of Rangely, Colorado. At the time of UBL construction the White River crossing was in the warmwater section of the river, near the Piceance Creek confluence. Presently the crossing is in the coldwater reach of the White and above the 150-mile recovery area.

Humpback Chub

The humpback chub currently lives in canyons with swift currents and white water, which eliminates all proposed crossings from concern with this species. Preferred habitat is far downstream of the Piceance Basin Expansion. Historically, this reach of the Yampa supported large populations of the Colorado pikeminnow and the humpback chub. Today it supports sparse numbers with little, if any, reproduction.

Bonytail Chub

The bonytail chub is the most endangered of the Colorado River fishes. Its distribution is limited to the lower reaches of the Yampa River in Dinosaur National Monument. The fish is not a concern at the river crossings proposed for construction of the Piceance Basin Expansion.

Razorback Sucker

The razorback sucker is a known resident of the Yampa River at the crossing site and though a small number are known in the White River, that crossing appears to be of minimal concern.

Considerations for Pipeline Construction

The most sensitive time of the year for endangered fishes is from May 15 to September 15, which is a time of year for spawning-related activities and rearing of young. Spawning migrations by Colorado pikeminnow in the Yampa River ranged from May 27 to June 30 in 1981, 1983 and 1988 (Tyus 1990). Spawning activity ranged from June 20 to August 18 during 5 years (1981, 1983, 1984, 1985, and 1988). Migrations of Colorado pikeminnow are also documented in the White River (Tyus 1987) at approximately the same time. Only one Colorado pikeminnow was reported in 1991 in the Little Snake River in the vicinity of Baggs, Wyoming (Personal communication with W.L. Minckley). The reach of the Little Snake crossed by the pipeline is not included in the FWS's recovery plans. Hatching dates for Colorado pikeminnow in the Yampa River ranged from June 11 to August 6 for the years 1981-1988 (Tyus and Haines 1991). Transport of larval Colorado pikeminnow from the Yampa River is rapid and nearly complete by mid-September. No water depletion of the Yampa is allowed between September 1 and September 15, a period of stream augmentation for the fishery, as mandated by the US Fish and Wildlife Service.

Instream construction activities should be avoided between May 15 and September 15, based on communication with B. Petch, CDOW and FWS requirements referenced above. Activity during this time period could physically interfere with migration of adult

Colorado pikeminnow and razorback sucker and/or chemically interfere with chemoreceptors that cue fish to spawning sites. Instream activity could also alter spawning areas and increase sedimentation to spawning gravels. Also, instream activities could destroy or disrupt nursery shorelines and backwaters before the fish are large enough to escape to alternate habitats.

The most desirable time for instream construction activity is from January 1 to May 15 because the young fish are sufficiently large to escape physical and chemical disturbances. Furthermore, any instream disturbance and increased sedimentation would be flushed by spring runoff, which usually occurs in these tributaries between May 15 and June 15. The second best period for construction is September 15 to December 31 because it is a period when the young fish continue to occupy nursery areas but are strong enough to escape most disturbances.

The FWS has unequivocally stated that no water withdrawals will occur from the Yampa River until September 15. Since this project will not start until after this date, this potential impact is avoided. These withdrawals appear to be below the 100 acre-feet (annual average) that triggers a $15.93/acre-foot depletion fee by the FWS. Add withdrawals of approximately 18 acre-feet from the three rivers in Colorado needed for dust abatement to the 33 acre-feet needed for hydrostatic testing and the 100 acre-feet is not reached. How these depletions will be treated by the FWS will be detailed in their Biological Opinion.

Instream disturbances should be kept to a minimum by avoiding heavy equipment in the stream where possible.

2.0 WATERBODY CONSTRUCTION PROCEDURES

WIC's Wetland and Waterbody Construction and Mitigation Procedures (WIC 2004) will be adopted in full for each stream channel crossing, unless other crossing procedures are approved by the appropriate agencies, including FERC. The Little Snake, Yampa and White rivers will be directionally drilled. Note that should the directional drill fail, an open cut would be required. Crossing these streams will occur after September 15, 2005.

2.1 CONSTRUCTION AND OPERATION IMPACTS

Impacts to streams range from bank destabilization and erosion to excessive sediment affecting fish survival. Entrainment of fishes during water extraction used for hydrostatic testing in the Little Snake, Yampa and White Rivers is another source of impact (See Hydrostatic Testing Plan, Plan of Development, Appendix D) as is water depletion for dust control or any other water use. Spills or leaks of toxic substances into streams also represent a potential impact to fisheries. Introduction of diesel fuel, oil, hydraulic fluid and other toxic substances into the fishery could result in direct mortality to fish, disruption of aquatic food bases, and long-term reduction in productivity of the stream (See Spill Prevention Containment and Countermeasure Plan, Plan of Development, Appendix C).

The Yampa (MP 87.6) and White (127.7) rivers will be directionally drilled, as suggested by the Colorado State Land Board (CSLB) the Colorado Division of Wildlife (CDOW), and the U.S. Fish and Wildlife Service (FWS) in their letter to the FERC (Letter to Salas, M.R., FERC, 8-16-04, ES/CO:FERC, MS 65412 GJ). The Little Snake River (MP 53.1) will be directionally drilling based on the recommendation of the construction contractor. Directional drilling will greatly reduce construction-related impacts at these crossings.

Potential impacts to these perennial streams would not be significant, except for the danger of fractures releasing drilling mud into the water. Should the drilling process fail, these crossings would be open cut, which could potentially result in significant impacts to these rivers. If this situation occurs, WIC has proposed a 250-foot-wide construction right-of-way in both stream beds. This width allows for movement of equipment and spoil to reduce the time working in the river and to protect and preserve river bottom spoil. Ultimately the reduced time constructing in the river and placing river spoil in areas of low stream flow will result in less sedimentation downstream. The major potential direct and indirect impacts would be bank stabilization after construction and increased sediment flows into perennial waters, which could affect fish survival. There are no impaired waters or contaminated sediments that affect pipeline construction or operation.

2.2 Horizontal Directional Drilling Plan

2.2.1 General

Horizontal Directional Drilling (HDD) is a trenchless construction method to install pipelines beneath features that require special attention to environmental and logistical concerns. This specification is general and will address the HDD installation for a natural gas pipeline. Contractor shall conduct work according to this specification or within the intent of this specification.

2.2.2 Foreign Line and Utility Crossings

WIC (the Company) will have exercised due diligence in locating foreign pipelines and/or utility line crossings. However, the Contractor shall confirm the location of all such crossings and notify the owner prior to any HDD activity in the vicinity of the crossings. Contractor shall be responsible for all damages to foreign pipelines and/or utility line crossings during HDD operations. Contractor shall repair damaged foreign pipelines and/or utility line crossings to original or better condition and meet Company approval. In all cases, foreign pipelines, utility line crossings and/or structures take precedence over Company tolerances.

2.2.3 Drilling Plan

The Contractor shall submit with his bid a preliminary drilling plan which describes the pilot hole, hole opening and pullback procedures. At a minimum, the plan shall include the number and diameter of each hole opening pass, manufacturer and type of down hole tools, supports/rollers along the stringing area, guidelines for the bentonite properties (i.e. viscosity, etc.), drilling fluid down hole pressures and drilling fluid flow rate. This plan

will be completed during the preconstruction phase for approval by Company. This plan must be approved by Company prior to construction. All drilling operations shall be performed by experienced supervisors and personnel. Contractor shall provide with his proposal resumes for all key personnel. Technical support, tool suppliers and required support systems used during this operation shall be provided by the Contractor.

2.2.4 Site Preparation

The Contractor shall set-up all necessary equipment, personnel and materials, set up work areas on the entry and exit sides of the crossing and prepare the sites for construction. The construction work space and sensitive area boundaries will be marked by the Company. The Contractor shall not go outside the provided work space or disturb any sensitive area. The Contractor shall meet the requirements and/or stipulations of each landowner in accordance with the ROW Line List.

2.2.4.1. Entry Side

The Contractor shall remove fences, trees, shrubs, trash and debris, and set up work space shown on plan and profile drawing. Contractor shall, at a Company approved site, dispose of all timber, stumps and rock as required to not impede construction activity. Contractor shall not damage those trees marked and/or fenced by Company on and/or adjacent to the work space. The area shall be graded and a 12-in. high containment berm built around the mud pit or as required by permits. The site shall contain the horizontal drilling rig, pipe storage racks, mud pumps, primary pickup pits, mud tank, shaker/desander-desilter, disposal pits, water cleaning equipment, dry storage area for drilling fluid additives (etc.), offices, a crane area, and parking facilities.

2.2.4.2 Exit Side Including Pipe Stringing Area

The Contractor shall remove fences, trees, shrubs, trash and debris, and set up a temporary work area as shown on plan and profile drawing. Contractor shall, at a Company approved site, dispose of all timber, stumps and rock as required to not impede construction activity. Contractor shall not damage those trees marked and/or fenced by Company on and/or adjacent to the work space. The area shall be graded and a 12-inch high containment berm built around the mud pit or as required by permits.

2.2.5 Pilot Hole Operations

Contractor shall provide and maintain instrumentation which will accurately measure drilling fluid discharge rate and pressure. Company shall have access to instruments and their readings at all times.

The pilot hole shall be drilled along the path shown on the plan and profile drawing within Company tolerances. However, right-of-way restrictions, foreign lines and utility crossings take precedence over Company tolerances. The entry and exit points as shown on plan and profile drawings shall be located using traditional survey methods. The position of the drill string shall be monitored by Contractor with precise down hole survey instruments and verified with surface location equipment, i.e., tru-tracker or equal. Contractor shall compute the position in the X, Y and Z axis relative to ground surface

from down-hole survey data a minimum of once per length of each drilling pipe (approximately 30-ft. interval). Deviations between the recorded position of the drill string and the plan and profile drawing shall be documented and immediately brought to the attention of the Company. Curves shall be drilled at a radius equal to or greater than that shown on the plan and profile drawing. Contractor shall calculate the drilled radius over any three joint (range 2 drill pipe) segments using the following formula:

$R_{drilled} = (L_{drilled}/A_{avg}) * 57.32$

Where:

$R_{drilled}$ = drilled radius over $L_{drilled}$

$L_{drilled}$ = length drilled, no less than 75 feet and no greater than 100 feet

A_{avg} = total change in angle over $L_{drilled}$

The horizontal deflection shall not exceed the limits of the permanent right-of-way as shown on plan and profile drawing; however, in all cases, right-of-way restrictions, foreign lines and utility crossings shall take precedence over horizontal deflection tolerance. Contractor shall provide to the Company, on demand, the data generated by the down-hole survey tools in a form suitable for independent calculation of the pilot hole profile. The exit point shall fall within a rectangle 20-ft. wide and 40-ft. long centered on the planned exit point.

2.2.6 Pipeline Assembly

2.2.6.1 Welding

The Contractor shall provide qualified welders to perform the work. Every welder shall be tested by Company in accordance with API 1104, 49CFR192 and Company Specifications.

All girth welds will have 100 percent radiographic inspection and be in accordance with API 1104, 49CFR192 and Company Specifications.

2.2.6.2 Girth Weld Coating and Coating Repairs

The Contractor shall repair pipe coating damaged after receipt from the Company. FBE coating repair shall be inspected with a Company-approved electronic holiday detector. Surface preparation, pipe coating repairs and inspection of coating repairs shall be in accordance with the Company specifications. Contractor shall coat all field joints in accordance with Company specifications to the thickness specified in the Scope of Work.

2.2.6.3 Hydrostatic Pretest

Contractor shall provide and maintain instrumentation, which will accurately measure hydrostatic test pressure. Company shall have access to instruments and their readings at all times.

The entire pull section shall be tested complete or as sub-assemblies prior to final reaming. Test pressure shall be for a minimum four continuous hour duration or per test design and be documented and performed in conformance with Company Specifications.

This preliminary hydrostatic test is a pretest and shall not preclude the requirement for an 8-hour test of the entire in-place crossing after installation.

2.2.7 Pullback Operations

Contractor shall provide and maintain instrumentation, which will accurately measure drill string axial and torsional loads. Company shall have access to instruments and their readings at all times.

Company maximum permissible tensile load imposed on the pull section shall be calculated using the following formula:

Max Pull Load = (SMYS * Pipe Area) * 0.9

Where:

SMYS = specifies minimum yield strength of pipe

Pipe Area = area of pipe section(s)

If more than one value is involved for a given pull section, the lesser shall govern.

To minimize torsional stress imposed on the pull section, Contractor shall use a swivel assembly to connect the pull section.

Contractor shall install pipeline in one continuous string with no tie-in welds unless stated otherwise in the Company approved drilling plan. Once Contractor begins pullback operations, installation shall not cease until pullback operations are complete.

Contractor shall provide buoyancy modification as required and/or when conditions necessitate.

During the pullback operation, Contractor shall monitor roller operation and use sidebooms if required to assist movement of the pipe. Situations which cause coating damage shall be corrected immediately. Coating damage shall be repaired to Company Coating Specifications by Contractor before pulling operations resume.

2.2.8 Site Restoration

Contractor shall remove all equipment, material (fencing, pit liners, etc.) and waste from all work areas. The general work area and all other construction areas used during construction shall be restored and graded by Contractor to their original contours.

Fences, gates, and utilities, which were removed or altered during construction, shall be restored or replaced by Contractor.

Land restoration shall satisfy Company General Conditions, landowner conditions, specifications and agency approved permits and the Plan of Development (POD).

2.2.9 Environmental

2.3.9.1 Work Space

Dewatering, including storm water, shall be completed per the Plan of Development (see Appendix B – NPDES Stormwater Pollution Prevention Plan).

All trash, removed vegetation, and waste shall be removed from the site and disposed of in a manner acceptable to the Company.

2.2.9.2 Water Supply

Contractor shall procure and transport water for drilling operations and hydrostatic testing from sources approved by the Company.

2.2.9.3 Hydrostatic Test Water Discharge

All hydrostatic test water shall be treated by Contractor to satisfy the POD and all applicable permit requirements and discharged at a Company approved site. At no time shall discharge cause soil erosion, bottom sediment disturbance, nor affect safety.

2.2.9.4 Bentonite

Technical criteria for bentonite shall be as given in API Spec. 13A, Specification for Oil Well Drilling Fluids Material. The composition of all drilling fluids proposed for use shall be submitted to Company for approval. Drilling fluids shall comply with all applicable permit requirements and environmental regulations.

2.2.9.5 Drilling Fluids and Cuttings Disposal

Waste cuttings and drilling fluids shall be disposed of by Contractor at a Company approved disposal site. The construction areas will be checked a minimum of twice daily for signs of unplanned leaks or seeps. A written record shall be maintained by the Contractor of all inspections and submitted with his daily report to the Company Representative.

2.2.9.6 Sanitation Facilities

Sanitation facilities shall be provided and human waste shall be transported off-site for disposal. Contractor shall provide portable toilets, garbage containers, and services to empty and clean these facilities at all work sites.

2.2.9.7 Refueling and Equipment Maintenance

All activities involving fuels and lubricants shall be performed in accordance with the Company Spill Prevention Control Plan (SPCP) in the POD (Plan of Development, Appendix C – Spill Prevention Control Plan).

2.2.9.8 Inadvertent Returns

The Horizontal Directional Drilling operation will be a closed system to eliminate the discharge of water, drilling fluids and cuttings to areas involved in the construction

process other than the entry and exit pits. Contractor shall provide equipment and procedures to maximize the recirculation of drilling fluid to minimize waste. In the event annular circulation is lost, Contractor shall take steps to restore circulation. If inadvertent returns (frac out) of drilling fluids occur, they shall be immediately contained with barriers (i.e. hay bales, silt fences, etc.) and/or a containment pit as necessary. Drilling fluids shall be collected using pumps or if the amount of inadvertent returns is not enough to practically pump, the affected area shall be diluted with fresh water and the drilling fluid will be allowed to dry and dissipate naturally in upland areas. If surface returns exceed what can be contained as described, drilling operations shall cease until inadvertent returns are under control.

2.2.9.9 Equipment and Materials

Contractor shall provide equipment (graders, shovel, etc.) and materials (such as ground sheets, hay bales and/or silt fences, booms, absorbent pads, etc.). Equipment shall be maintained on site and materials stockpiled and readily available for use during clean-up , erosion control and contingencies, as necessary.

2.2.9.10 Record Drawing

Contractor shall maintain a separate set of plan and profile construction drawings on site during construction. Details will be neatly marked on these drawings on a daily basis. If changes are required which cannot be marked on the drawings, the Contractor shall prepare a neat sketch complete with dimensions and notes. At the end of the job the Record As-Built Drawing will be signed by the Contractor and turned over to the Company.

2.3 YAMPA RIVER CONSTRUCTION

To protect the endangered fishes at the Yampa River, WIC plans to directionally drill the crossing. The Horizontal Directional Drilling Plan will proceed as described in Section 2.2. The Typical Workspace Layout Directional Drill Method – Procedure 7 is located in the Plan of Development, Appendix A. DWG 233A-37A-1, Plan and Profile Crossing of the Yampa River is also located in Appendix A . A bridge for construction equipment will be built prior to river crossing construction to facilitate movement of stringing trucks, dozers, graders, track hoes and trenching machines. The bridge will use clean gravel and flumes along each bank to support a railroad car. At the Yampa, an additional gravel support may be needed in the middle of the stream. A total of 4.4 acres of wetlands would be affected by construction at the Yampa River crossing.

2.4 WHITE RIVER CONSTRUCTION

To protect the endangered fishes at the White River, WIC plans to directionally drill the crossing. The Horizontal Directional Drilling Plan is presented above in Section 2.2. The Typical Workspace Layout Directional Drill Method – Procedure 7 is located in the Plan of Development, Appendix A. DWG 233A-53A-1, Plan and Profile Crossing White River is also located in Appendix A. A bridge for construction equipment will be built prior to river crossing construction to facilitate movement of stringing trucks, dozers, graders, track hoes and trenching machines. The bridge will use clean gravel and flumes

along each bank to support a railroad car. A total of 0.4 acres of wetlands would be affected by construction activities on the White River.

2.5 LITTLE SNAKE RIVER CONSTRUCTION

The Little Snake River will also be directionally drilled, based on the recommendation of the construction contractor. The Horizontal Directional Drilling Plan is presented above in Section 2.2. An additional list of general construction notes and site-specific notes are found on DWG 233A-22A-1, Appendix A.The Typical Workspace Layout Directional Drill Method – Procedure 7 is located in the Plan of Development, Appendix A. A bridge for construction equipment will be built prior to river crossing construction to facilitate movement of stringing trucks, dozers, graders, track hoes and trenching machines. The bridge will use clean gravel and flumes along each bank to support a railroad car. A total of approximately 1.15 acres of wetlands would be affected by construction on the Little Snake River.

3.0 REFERENCES CITED

Minckley, W.L. 1991. Personal communication with Richard Valdez, Bio/West, Inc., Logan, Utah (435/752-4202) regarding Colorado squawfish distribution in the Little Snake River.

Tyus. H.M., R.L. Jones, and L.A. Trinca. 1987. Colorado River fishes monitoring project. 1982-1985. Final Report. U.S. Department of Interior, Fish and Wildlife Service, Vernal, Utah. 127 pp.

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Tyus H.M. and G.B. Haines. 1991. Distribution, habitat use, and growth of age-0 Colorado squawfish in the Green River Basin, Colorado and Utah. Trans. Amer. Fish. Soc. 120(1):79-89.

Wyoming Interstate Company (WIC). 2004. Wyoming Interstate Company's Wetland and Waterbody Construction and Mitigation Procedures. El Paso Corporation, Colorado Springs, CO. December 2004. 20 pp.

APPENDIX G

WIC'S DRAFT NOXIOUS AND INVASIVE WEED PLAN

Piceance Basin Expansion Natural Gas Pipeline
Draft Noxious and Invasive Weed Plan

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Prepared by:

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March 24, 2005

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1.0 INTRODUCTION

Noxious weed control practices for the Piceance Basin Expansion as described in this plan have been developed utilizing the following sources:

1) Noxious weed surveys of the pipeline right-of-way conducted in summer and fall 2004 by Bio-Resources, Inc.;
2) Colorado Department of Agriculture, Division of Plant Industry;
3) Colorado County Noxious Weed Program;
4) Colorado Noxious Weed Act.
5) Wyoming Designated Noxious Weeds .S. 11-5-102 (a) (xi) and Prohibited Noxious Weeds W.S. 11-12-104
6) BLM Wyoming Invasive Weeds

1.1 Plan Purpose

The purpose of this plan is to prescribe methods to prevent and control the spread of noxious weeds during and following construction of the Piceance Basin Expansion. The Wyoming Interstate Company (WIC) and its contractors will be responsible for carrying out the methods described in this plan.

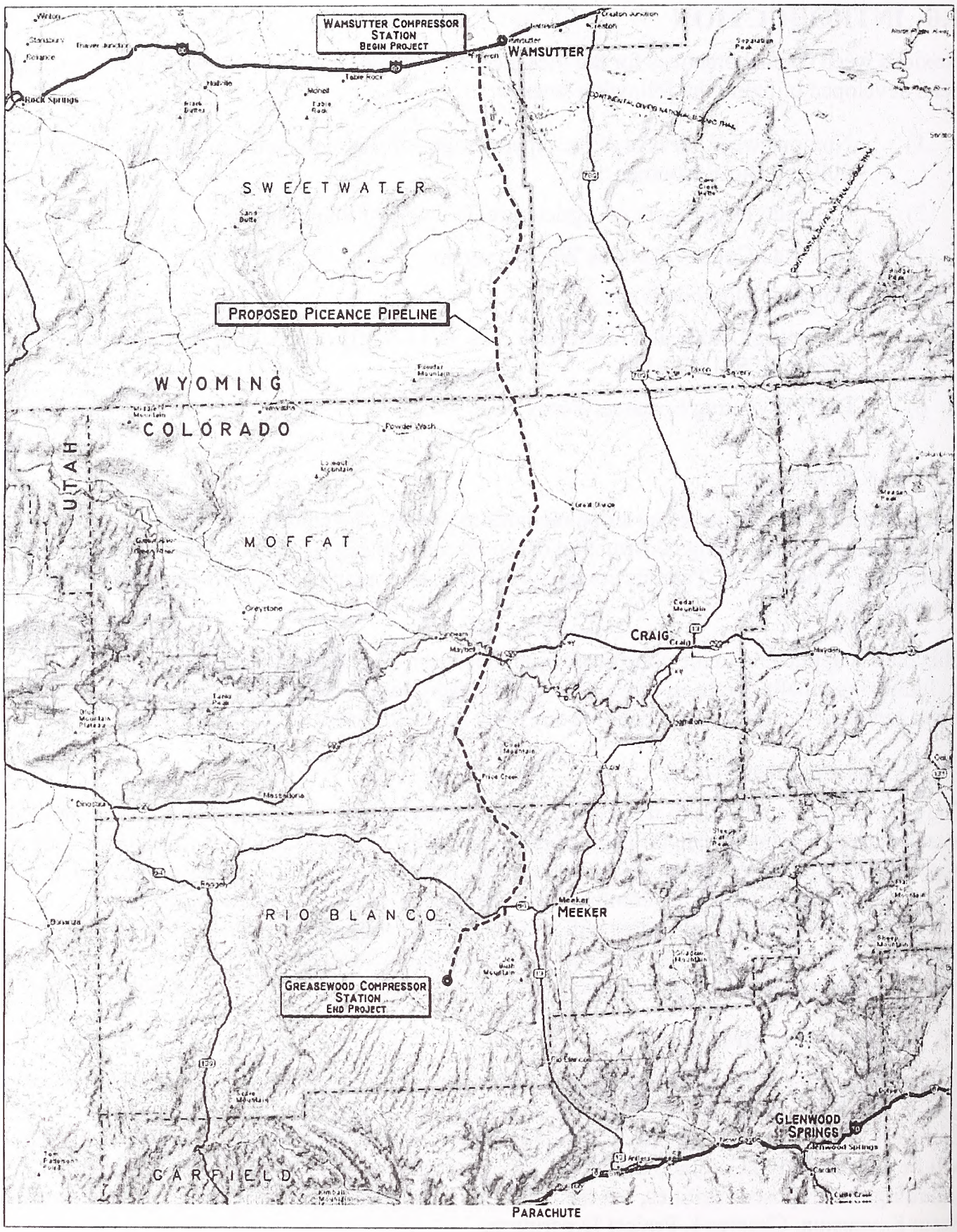
This plan is applicable to the construction and operation of the proposed pipeline facilities, including the pipeline right-of-way, aboveground facilities, staging areas, railyard/pipe storage areas, temporary extra workspaces, and any other areas disturbed during construction.

1.2 Goals and Objectives

The goal of weed control is to implement preventive measures to minimize the spread of noxious weeds during pipeline installation and construction of the proposed facilities. Noxious weeds are opportunistic plant species that readily flourish in disturbed areas, thereby preventing native plant species from establishing communities. Monitoring and maintenance during the construction and operational phases will include identification of any local infestation areas on and adjacent to the right-of-way that may pose potential infestation. An evaluation of the efficiency of the prescribed control measures will be implemented during the operational phase.

1.3 Project Description

WIC proposes to construct and operate facilities to transport natural gas from the Greasewood Hub in Rio Blanco County, Colorado to a new interconnect at Colorado Interstate Gas Company's Wamsutter Compressor Station in Sweetwater County, Wyoming. These facilities will be constructed in Colorado and Wyoming (see Figure 1). For more detailed information regarding the proposed facilities, see the Draft Environmental Impact Statement for the Piceance Basin Expansion, Chapter 1, Project Description.



elpaso
Colorado Interstate Gas Company

FIGURE 1 PICEANCE BASIN EXPANSION PIPELINE - GENERAL LOCATION MAP.

2.0 NOXIOUS WEED INVENTORY

Preconstruction field surveys were conducted to identify existing noxious weed infestations along the pipeline right-of-way, and at the proposed facilities. Field surveys targeted species designated by law as noxious weeds within the states of Colorado and Wyoming, as well as county noxious weed lists for Moffat and Rio Blanco counties, Colorado (Table 1). The results of field surveys are shown on Maps 1-8.

Invasive weeds were noted along the pipeline right-of-way during survey efforts in 2004; however, invasive weed locations were not mapped at that time. At the request of the Bureau of Land Management, the pipeline right-of-way and associated facilities will be surveyed again in early summer 2005. Locations of invasive weeds will be mapped and results of this survey will be appended to this Noxious and Invasive Weed Plan.

Both states crossed by the pipeline maintain an official list of weed species that are designated noxious species. Local weed supervisors in Colorado designate weed species as noxious within individual counties. Noxious weeds are defined as weeds "...arbitrarily defined by law as being especially undesirable, troublesome, and difficult to control. Definition will vary according to legal interpretation (USU Cooperative Extension 1992)." Information such as species identified within counties traversed by the project was collected from the Colorado Department of Agriculture, Division of Plant Industry; the Wyoming Weed and Pest Control Council; Bureau of Land Management, and local Weed Districts.

WIC, the Bureau of Land Management (BLM), and other agencies recognize there are species, such as cheatgrass (*Bromus tectorum*), that because of their widespread distribution, are not considered feasible for general control. In addition, WIC's objective is to prevent the spread of noxious weeds, and treat selected areas along the right-of-way where target species are problematic and form a significant portion of the vegetation community in comparison to adjacent undisturbed areas.

The preventive measures identified in Section 3.2 will be implemented along the pipeline right-of-way and at all of the proposed facilities to minimize the spread of noxious weeds during construction activities.

2.1 COLORADO

Under the authority of the Colorado Weed Management Act (§§ 35-5.5-101 through 119, C.R.S.) (2003), 71 plant species have been officially designated as noxious. The state of Colorado classifies noxious weeds into three lists, A, B, and C.

1) List A includes noxious weeds targeted for eradication. State noxious weed management plans for List A species are included in Part 3 of 8 CCR 1203-19, Rules Pertaining to the Administration and Enforcement of the Colorado Noxious Weed Act.

2) List B includes noxious weed species that the state recommends managing, but does not require it by law (though other agencies may require management). Currently, there are no state noxious weed management plans for List B species.

3) List C includes noxious weed species for which the state's goal is not to stop their continued spread (though other agencies may require management), but to provide educational, research, and biological control resources. Currently, there are no state noxious weed management plans for List C species.

List A species and weeds of concern to individual counties along the pipeline right-of-way are noted in Table 1. The goal for noxious weeds on the county lists is eradication where possible, or containment then control where eradication is not feasible.

2.2 Wyoming

Twenty-four plant species officially have been designated as noxious by the state of Wyoming, per the Wyoming Weed and Pest Control Act. The state's list of noxious weeds is presented Table 1.

Table 1. Noxious Weeds of Concern Along WIC's Piceance Basin Expansion

Common Name	Scientific Name	Colorado*	Wyoming	Located During 2004 Survey
African Rue	*Peganum harmala*	List A		
Black Henbane	*Hyoscyamus niger*	Rio Blanco List B		
Camelthorn	*Alhagi pseudalhagi*	List A		
Common Burdock	*Arctium minus*	Rio Blanco	State List	MP 111
Common Crupina	*Crupina vulgaris*	List A		
Common Mullein	*Verbascum thapsus*	Rio Blanco List C		MP 111.9
Common St. Johnswort	*Hypericum perforatum*	List C	State List	
Common Tansy	*Tanacetum vulgare*	List B	State List	
Cypress Spurge	*Euphorbia cyparissias*	List A		
Dyer's Woad	*Isatis tinctoria*	List A	State List	
Field Bindweed	*Convolvulus arvensis*	Rio Blanco List C	State List	MP 111
Giant Salvinia	*Salvinia molesta*	List A		
Halogeton		Rio Blanco List C		Wamsutter compressor station to the Wyoming-Colorado border
Hoary Cress (whitetop)	*Cardaria draba and Cardaria pubescens*	Rio Blanco List B	State List	MP 20
Houndstongue	*Cynoglossum officinale*	Rio Blanco List B	State List	MP 111, 111.9, 117, 133.7, access road in Strawberry Peak area
Hydrilla	*Hydrilla verticillata*	List A		
Knapweed, Black	*Centaurea nigra*	Rio Blanco		
Knapweed, Diffuse	*Centaurea diffusa*	Moffat, Rio Blanco List B	State List	
Knapweed, Meadow	*Centaurea pratensis*	List A		
Knapweed, Russian	*Centaurea or Acroptilon repens*	Moffat, Rio Blanco List B	State List	

Table 1. Noxious Weeds of Concern Along WIC's Piceance Basin Expansion				
Common Name	**Scientific Name**	**Colorado***	**Wyoming**	**Located During 2004 Survey**
Knapweed, Spotted	*Centaurea maculosa*	Moffat, Rio Blanco List B	State List	
Knapweed, Squarrose	*Centaurea virgata*	List A		
Leafy Spurge	*Euphorbia esula*	Moffat, Rio Blanco List B	State List	MP 127.7, 131.7, 133, 133.3, 133.7, access road near MP 129.5
Mediterranean sage	*Salvia aethiopis*	List A		
Medusahead	*Taeniatherum caput-medusae*	List A		
Myrtle spurge	*Euphorbia myrsinites*	List A		
Oxeye Daisy	*Chrysanthemum leucanthemum*	List B	State List	
Perennial Pepperweed (Giant whitetop)	*Lepidium latifolium*	Rio Blanco List B	State List	
Perennial Sowthistle	*Sonchus arvensis*	List C	State List	
Purple Loosestrife	*Lythrum salicaria*	List A	State List	
Quackgrass	*Agropyron repens*	List B	State List	
Rush Skeletonweed	*Chondrilla juncea*	List A		
Skeletonleaf Bursage	*Franseria discolor*	List A	State List	
Sericea lespedeza	*Lespedeza cuneata*	List A		
Tamarisk (Saltcedar)	*Tamarix spp*	List B	State List	
Tansy Ragwort	*Senecio jacobea*	List A		
Thistle, Canada	*Cirsium arvense*	Rio Blanco List B	State List	MP 111, 114.3, 114.7, 114.8, 120.3, 122.8, 127.7, 135.1
Thistle, Musk	*Carduus nutans*	Rio Blanco List B	State List	MP 111
Thistle, Plumeless	*Carduus acanthoides*	Rio Blanco List B	State List	
Thistle, Scotch	*Onopordum acanthium* *Onopordum tauricum*	Rio Blanco List B	State List	MP 111
Toadflax, Dalmation	*Linaria dalmatica*	Rio Blanco List B	State List	
Toadflax, Yellow	*Linaria vulgaris*	Rio Blanco List B	State List	
Yellow Starthistle	*Cantaurea solstitialis*	List A		

**** The Colorado list includes weeds listed as of concern to individual counties along the right-of-way in Colorado, as well as their designation by the state. The State of Colorado lists species according to control recommendations. List A species are targeted for eradication and management plans have been developed for their control. Control of these species is required by law. List B species are recommended for control, but management plans have not yet been developed for these species and control is not required by law. List B species were not included in this table unless they also appeared on an individual county's noxious weed list. List C species are generally considered too widespread to effectively control, and control of List C species is not required. List C species were not included in this table unless they also appeared on an individual county's noxious weed list.***

3.0 NOXIOUS WEED MANAGEMENT

Regulatory agencies along the pipeline right-of-way and at the proposed facilities have varying requirements for weed management. Those requirements that diverge from the basic preventive measures WIC already requires of its Contractors are noted in Section 3.4. Implementation of preventive measures to control the spread of noxious weeds is the most cost-effective management approach.

3.1 Identification of Problem Areas

Prior to construction, WIC will provide information and training regarding noxious weed management; identification; and the impacts on agriculture, livestock, and wildlife to the Construction Contractors and inspection staff. The importance of preventing the spread of noxious weeds in areas not infested, and controlling the proliferation of weeds already present, will be explained. During construction, areas of concern will be identified and flagged in the field by WIC staff. The flagging will alert construction personnel and prevent access into areas until noxious weed management control measures have been implemented.

3.2 Preventive Measures

The following preventive measures will be implemented to prevent the spread of noxious weeds:

1) All Contractor vehicles and equipment will be cleaned prior to arrival at the work site using power or high pressure equipment. The washdown will concentrate on tracks, feet, or tires and on the undercarriage, with special emphasis on axles, frame, cross members, motor mounts, and on underneath steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs will be swept out and refuse will be disposed of in waste receptacles. The Contractor, with Environmental Inspector (EI) oversight, will ensure that vehicles and equipment are free of soil and debris capable of transporting noxious weed seeds, roots, or rhizomes before the vehicles and equipment leave the contractor's yard and are allowed use of access roads and the right-of-way.

2) In areas where infestations are identified or noted in the field, the Contractor will stockpile cleared vegetation and salvaged topsoil adjacent to the area from which they are stripped to eliminate the transport of soil-borne noxious weed seeds, roots, or rhizomes. During reclamation, the Contractor will return topsoil and vegetative material from infestation sites to the areas from which they were stripped.

3) The Contractor will use compressed air to remove seeds, roots, and rhizomes from the equipment before transport off site. Cleaning sites will be at designated staging or contractor yards. Cleaning sites will be recorded using GPS equipment and this information will be reported to the local contact person or agency.

4) The Contractor will ensure that straw or hay bales used for sediment barrier installations or mulch distribution are obtained from state-cleared sources that are free of primary noxious weeds.

5) The Contractor will implement the reclamation of disturbed lands immediately following construction as outlined in the Reclamation Plan. Continuing revegetation efforts will ensure adequate vegetative cover to prevent the invasion of noxious weeds.

6) The Contractor will apply fertilizer to reclaimed areas only according to the Reclamation Plans and as directed by the jurisdictional land management agency, property owner, or EI.

3.3 Treatment Methods

WIC will implement noxious weed control measures that will be in accordance with existing regulations and jurisdictional land management agency or landowner agreements. Before construction, appropriate action, which may include application of herbicides, will be taken on identified weed infestations to reduce the spread or proliferation of weeds. Post-construction control measures may include one or more of the following methods:

1) Mechanical methods rely on equipment that is used to mow or disc weed populations. If such a method is used, subsequent seeding will be conducted to re-establish a desirable vegetative cover that will stabilize the soils and slow the potential re-invasion of noxious weeds. Seed selection will be based on site-specific conditions and the appropriate seed mix identified for those conditions, as presented in the Reclamation Plan;

2) Discing or other mechanical treatments that would disturb the soil surface within native habitats or occupied prairie dog towns will be avoided;

3) Suitable habitat for four state and BLM-listed sensitive plants has been identified along the pipeline right-of-way (Table 2). Herbicide use will be prohibited in these areas, and noxious weeds will be controlled by manual methods only.

Table 2. Rare Plant Locations on the Piceance Basin Expansion, Wyoming and Colorado, 2004

Milepost	Common Name	Scientific Name	Status
38.8	Sheep Creek beardtongue	*Penstemon pachyphyllus* var *mucronatus*	Sensitive, State of Wyoming
39.4	Sheep Creek beardtongue	*Penstemon pachyphyllus* var *mucronatus*	Sensitive, State of Wyoming
41.8	Sheep Creek beardtongue	*Penstemon pachyphyllus* var *mucronatus*	Sensitive, State of Wyoming
41.9	Sheep Creek beardtongue	*Penstemon pachyphyllus* var *mucronatus*	Sensitive, State of Wyoming
41.9	Colorado bedstraw	*Galium coloradoense*	Sensitive, State of Wyoming
42.0	Sheep Creek beardtongue	*Penstemon pachyphyllus* var *mucronatus*	Sensitive, State of Wyoming
42.0	Colorado bedstraw	*Galium coloradoense*	Sensitive, State of Wyoming
49.0	San Raphael daisy	*Erigeron compactus* var. *consimilis*	Sensitive, State of Wyoming
50.7	San Raphael daisy	*Erigeron compactus* var. *consimilis*	Sensitive, State of Wyoming
125.1	Debris milkvetch	*Astragalus detritalis*	Sensitive, State of Colorado; Sensitive, BLM
125.15	Debris milkvetch	*Astragalus detritalis*	Sensitive, State of Colorado; Sensitive, BLM

4) Herbicide application is an effective means of reducing and/or eradicating the size of noxious weed populations and noxious weed seed banks. Applications will be controlled, as described in Section 5.1, to minimize the impacts on the surrounding vegetation. In areas of dense infestation, a broader application will be used and a follow-up seeding program implemented. Supplemental seeding will be based on the criteria in the Reclamation Plan. The timing of subsequent revegetation efforts will be based on the life of the selected herbicide;

5) Treatment methods will be based on species-specific and area-specific conditions (e.g., proximity to water or riparian areas, or agricultural areas, and time of year) and will be coordinated with the local regulatory offices; and

6) If areas are not seeded until the following spring because of weather or scheduling constraints, all annuals and undesirable vegetation that have become established will be controlled before seeding.

3.4 Agency-Specific Requirements

As noted in Section 3.1, federal agency requirements that are more stringent than those imposed by local agencies are noted below.

3.4.1 Public Land Administered by Bureau of Land Management

Herbicides used on BLM lands will include those registered by the EPA for forestry, right-of-way and rangeland uses. Specific chemicals will be selected based on efficacy of control for the target species. Procedures for herbicide application are in accordance with WIC's herbicide application, handling, spills, and clean-up guidelines described in Section 5.0.

Occurrence of weed infestations within the pipeline right-of-way will be reported to the appropriate BLM Field Office, including the Rawlins Field Office in Wyoming, or the Little Snake or White River Field Office in Colorado. The appropriate weed control procedures, including target species, timing of control, and method of control, will be determined in consultation with BLM personnel. WIC will be responsible for providing the necessary personnel or hiring a Contractor to implement the weed control procedures.

3.4.2 Other Agency and Landowner Requirements

WIC may be able to take advantage of the existing cooperative agreements between most of the counties by providing the funds required for county personnel to implement the necessary weed control procedures. If not, WIC will be responsible for providing the necessary personnel or hiring a Contractor to implement the weed control procedures. WIC may also qualify for discount programs available in some counties for chemicals used to control noxious weeds.

4.0 MONITORING

Monitoring of noxious weeds will be conducted during reclamation monitoring, on an ongoing basis, as well as on an annual basis in areas of known infestations.

4.1 Reclamation Monitoring

WIC intends to begin monitoring during the first growing season following construction. Reclamation and the associated noxious weed monitoring of the pipeline right-of-way will begin in the summer of 2006 following the 2005 construction. Noxious weed monitoring will occur biannually (twice yearly) for approximately 5 years. Noxious weed conditions will be included in the primary second growing season evaluations of revegetation success (2007). WIC will implement this schedule on federal and state-owned lands, as well as private lands. After the initial 5 years of monitoring of the right-of-way, control measures and monitoring will be continued in problem areas of infestation. This monitoring will continue as long as it takes to control any infestation.

WIC will document its observations following the above-noted field inspections and make these monitoring reports available to the Bureau of Land Management, counties and the FERC as required.

Any areas where a spread of noxious weed infestation is noted, particularly in previously unaffected areas, will be further evaluated to determine if they require remedial action and additional treatment. WIC will identify such areas to the agencies by state, county, and milepost, and will record any additional noxious weed control treatments. A report summarizing right-of-way stability, revegetation progress, percent cover, and weed infestation will be provided to the landowners every two years.

4.2 Ongoing Monitoring

WIC will communicate with individual land owners, counties, and land management agencies if they have a concern pertaining to noxious weeds within their jurisdiction. These parties may also contact WIC to report on the presence of noxious weeds. WIC will control the weeds on a case-by-case basis and include a summary of actions taken in the next Reclamation Monitoring Report (above). Furthermore, WIC's operations personnel will be trained in the identification of predominant noxious weed populations and will report spreads of noxious weeds during the normal course of maintenance.

4.3 Monitoring of Known Infestation Areas

In addition to biannual and the ongoing noxious weed monitoring (as noted by counties/ landowners or WIC's pipeline maintenance and operations team), WIC will conduct annual site visits to monitor known infestation areas (Table 1 and Maps 1-?). These areas will be evaluated and controlled. WIC will continue to visit these infestation areas on and ongoing basis or until noxious weeds in the area are controlled.

5.0 HERBICIDE APPLICATION, HANDLING, SPILLS, AND CLEANUP

5.1 HERBICIDE APPLICATION AND HANDLING

Herbicide application will be based on information gathered from the State Weed Laws and the Bureau of Land Management. Before application, WIC or its Contractor will obtain any required permits from the local authorities (the Weed Districts and Bureau of Land Management). A licensed contractor will perform the application in accordance with applicable laws and regulations. Spraying is scheduled to occur in the spring of 2005, with landowner permission, prior to seeding by the weeds. If needed, individual populations will be sprayed again prior to the first entry by any construction equipment associated with the project.

All herbicide applications will follow Environmental Protection Agency label instructions. Application of herbicides will be suspended when any of the following conditions exists:

1) Wind velocity exceeds 6 miles per hour (mph) during application of liquids or 15 mph during application of granular herbicides;

2) Snow or ice covers the foliage of noxious weeds; or

3) Precipitation is occurring or is imminent.

Vehicle-mounted sprayers (e.g., handgun, boom, and injector) will be used mainly in open areas that are readily accessible by vehicle. Hand application methods (e.g., backpack spraying) that target individual plants will be used to treat small or scattered weed populations in rough terrain. Calibration checks of equipment will be conducted at the beginning of spraying and periodically to ensure that proper application rates are achieved.

Herbicides will be transported to the project site daily with the following provisions:

1) Only the quantity needed for that day's work will be transported;

2) Concentrate will be transported in approved containers only and in a manner that will prevent tipping or spilling, and in a compartment that is isolated from food, clothing, and safety equipment;

3) Mixing will be done off site and at a distance greater than 200 feet from open or flowing water, wetlands, or other sensitive resources. No herbicides will be applied at these areas unless authorized by appropriate regulatory agencies; and

4) All herbicide equipment and containers will be inspected for leaks daily.

5.2 Herbicide Spills and Cleanup

All reasonable precautions will be taken to avoid herbicide spills. In the event of a spill, cleanup will be immediate. Contractors will keep spill kits in their vehicles and in herbicide storage areas to allow for quick and effective response to spills. Items to be included in the spill kit are:

1) Protective clothing and gloves,
2) Adsorptive clay, "kitty litter," or other commercial adsorbent,
3) Plastic bags and bucket,
4) Shovel,
5) Fiber brush and screw-in handle,
6) Dust pan,
7) Caution tape,
8) Highway flares (use on established roads only), and
9) Detergent.

Response to an herbicide spill will vary with the size and location of the spill, but general procedures include:

1) Traffic control;
2) Dressing the clean-up team in protective clothing;
3) Stopping the leaks;
4) Containing the spilled material;
5) Cleaning up and removing the spilled herbicide and contaminated adsorptive material and soil; and
6) Transporting the spilled pesticide and contaminated material to an authorized disposal site.

5.3 Worker Safety and Spill Reporting

All herbicide contractors will obtain and have readily available copies of the appropriate material safety data sheets for the herbicides used. All herbicide spills will be reported in accordance with applicable laws and requirements.

6.0 REFERENCES

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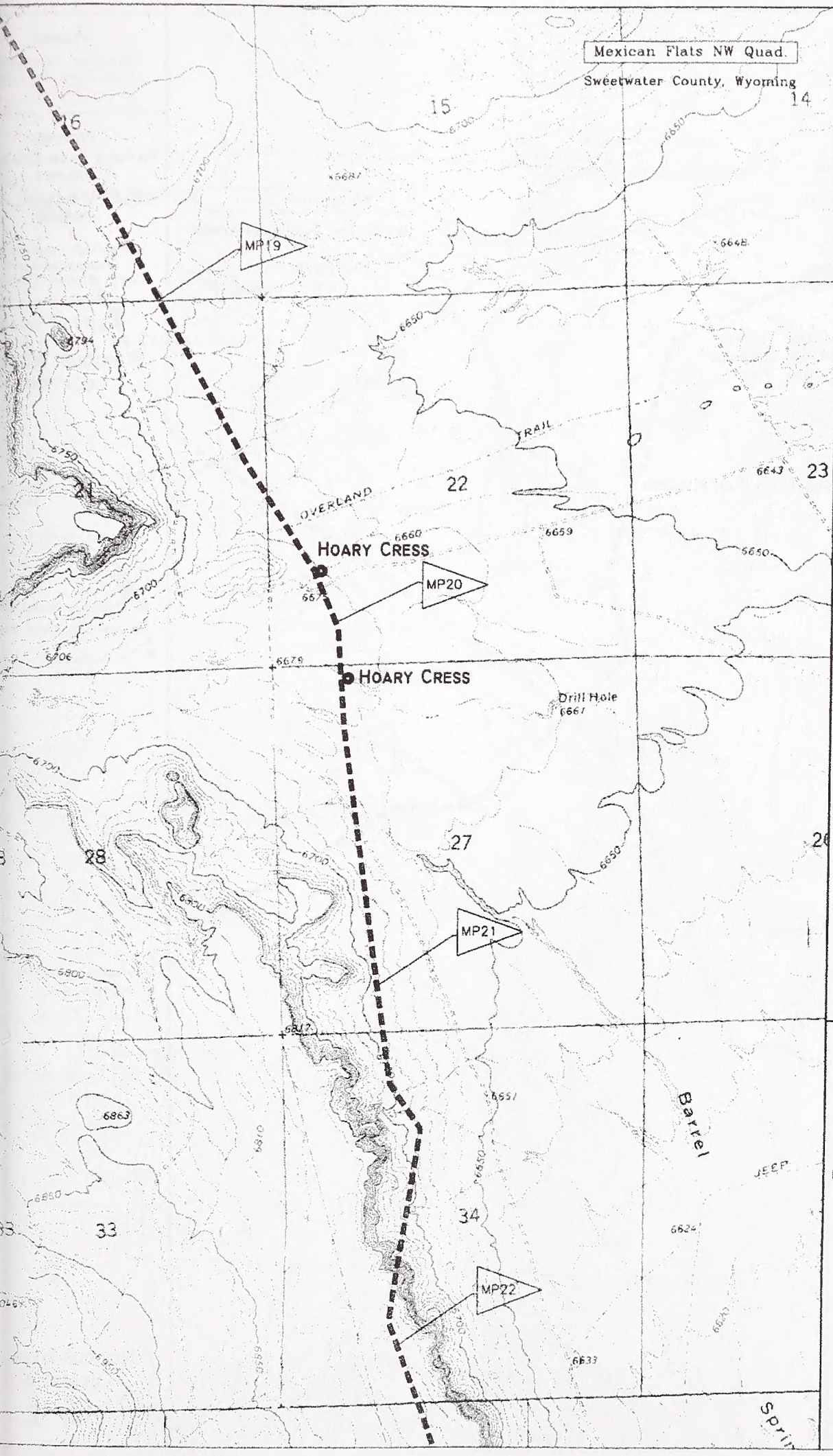

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PROPOSED
PICEANCE BASIN EXPANSION PROJECT
233A 24" NATURAL GAS PIPELINE

Wamsutter, Wyoming to
Greasewood Gulch
Comp. Station, Colorado

NOXIOUS WEED LOCATIONS

Key:

Milepost Marker
MP38
Noxious Weed Point
Proposed Pipeline

0 2000
Scale in Feet
N

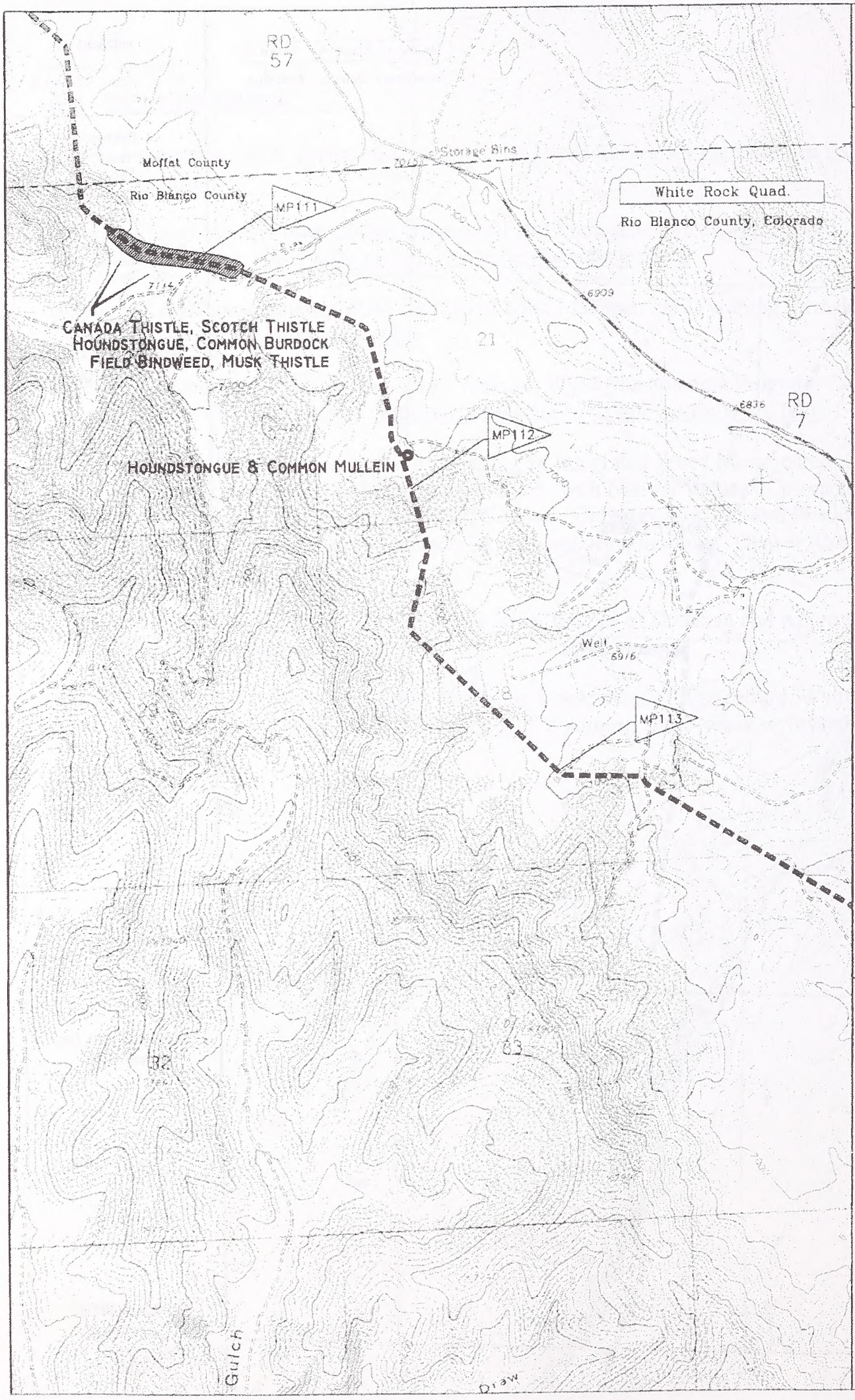
Prepared by:
BIO-RESOURCES, INC.
Logan, Utah

Notes:

Date: January 3, 2005

NOXIOUS WEED LOCATIONS

MAP I.



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PROPOSED
PICEANCE BASIN EXPANSION
PROJECT

233A 24" NATURAL GAS
PIPELINE

Wamsutter, Wyoming to
Greasewood Gulch
Comp. Station, Colorado

NOXIOUS WEED LOCATIONS

Key:

Milepost Marker

MP38

Noxious Weed Area

Noxious Weed Point

Proposed Pipeline

0 2000

Scale in Feet

N

Prepared by:

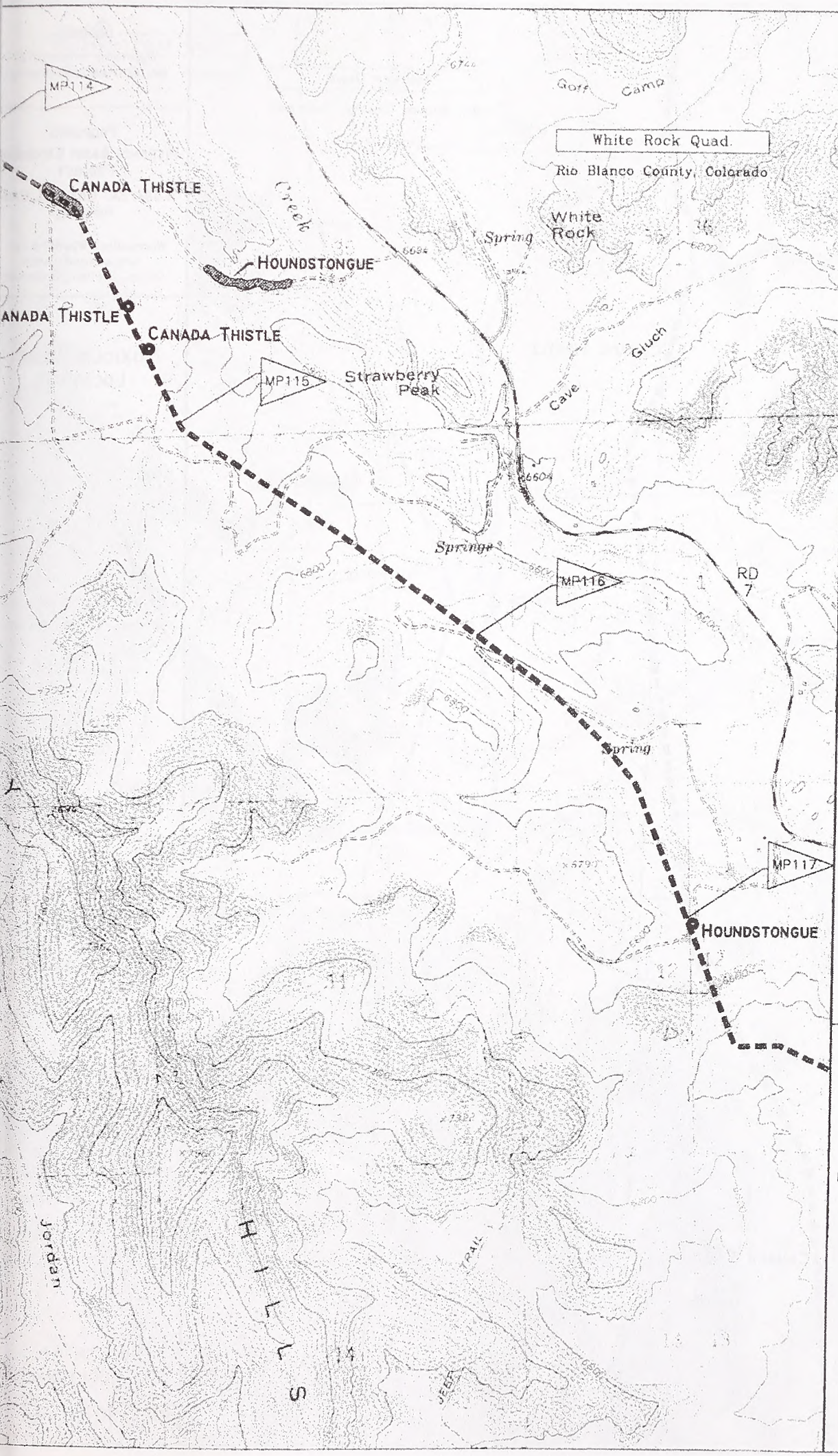
BIO-RESOURCES, INC.
Logan, Utah

Notes:

Date: January 3, 2005

NOXIOUS WEED LOCATIONS

MAP 2.



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PICEANCE BASIN EXPANSION PROJECT
233A 24" NATURAL GAS PIPELINE

Warnsutter, Wyoming to Greasewood Gulch Comp. Station, Colorado

NOXIOUS WEED LOCATIONS

Key:

Milepost Marker
MP38
Noxious Weed Area
Noxious Weed Point
Proposed Pipeline

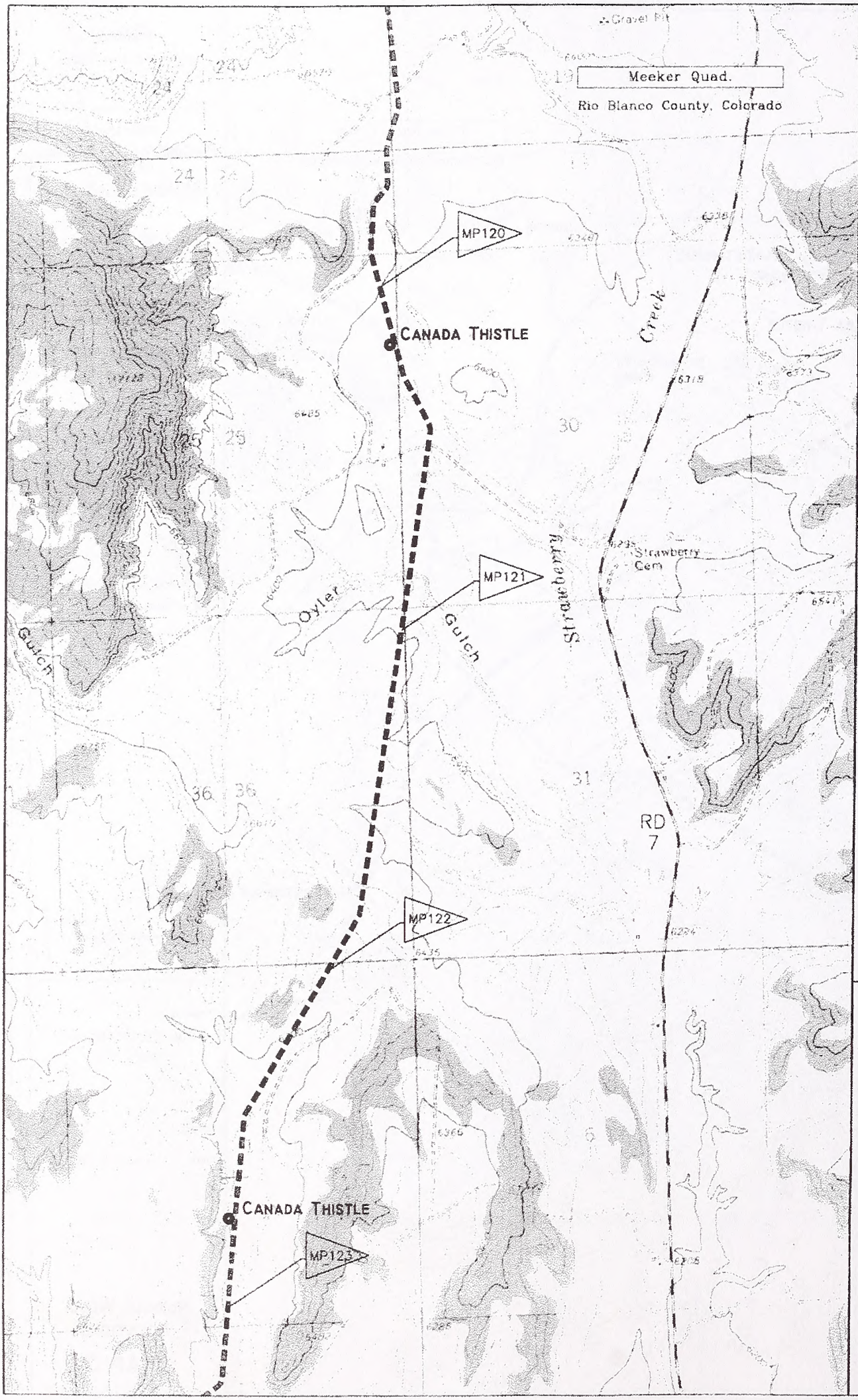
0 2000
Scale in Feet
N

Prepared by:
BIO-RESOURCES, INC.
Logan, Utah

Notes:

Date: January 3, 2005

NOXIOUS WEED LOCATIONS
MAP 3.



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PROPOSED PICEANCE BASIN EXPANSION PROJECT

233A 24" NATURAL GAS PIPELINE

Wamsutter, Wyoming to Greasewood Gulch Comp. Station, Colorado

NOXIOUS WEED LOCATIONS

Key:

Milepost Marker

MP38

Noxious Weed Area

Noxious Weed Point

Proposed Pipeline

0 2000

Scale in Feet

N

Prepared by:

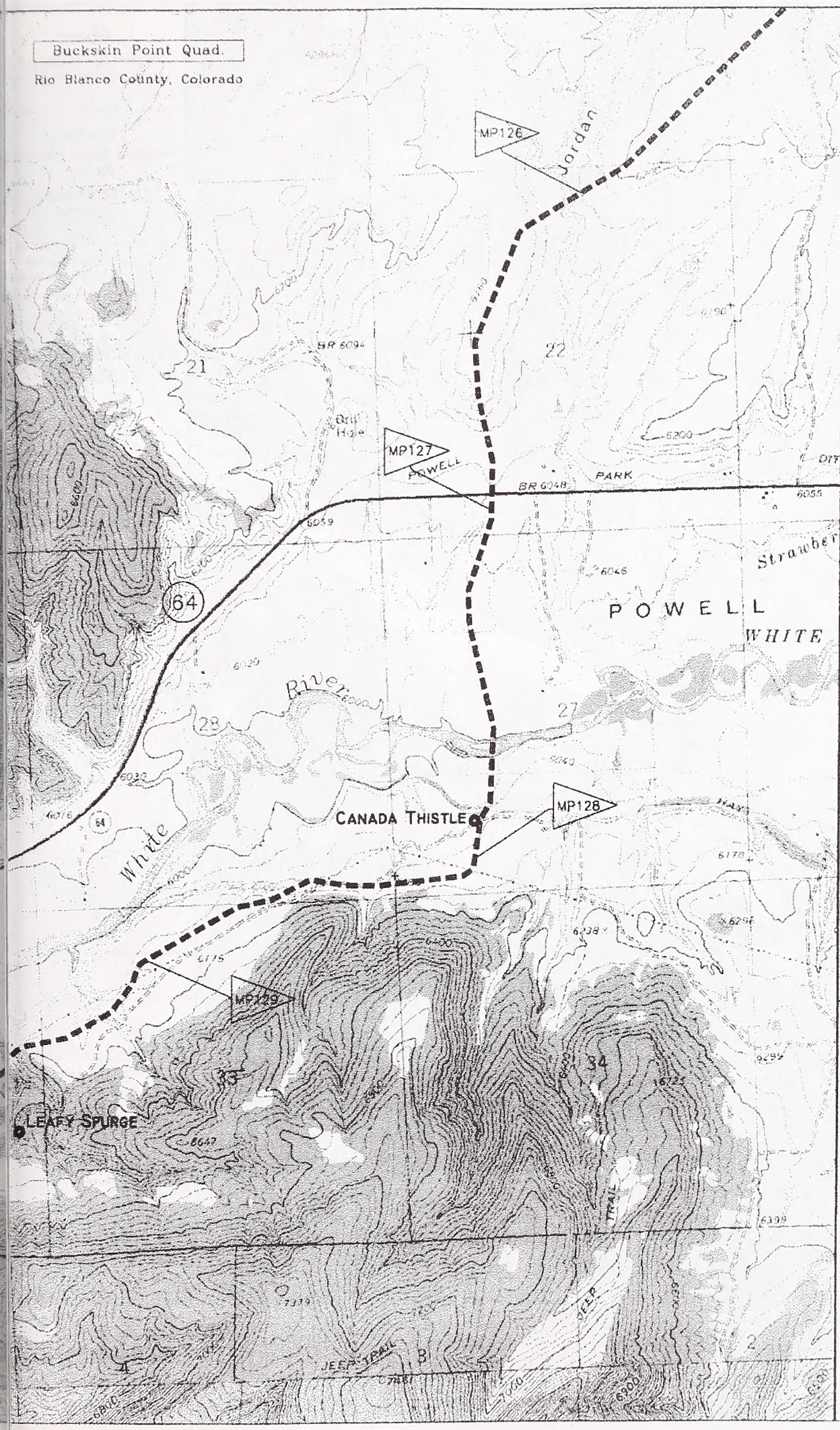
BIO-RESOURCES, INC.
Logan, Utah

Notes:

Date: January 3, 2005

NOXIOUS WEED LOCATIONS

MAP 4.



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PROPOSED PICEANCE BASIN EXPANSION PROJECT

233A 24" NATURAL GAS PIPELINE

Wamsutter, Wyoming to Greasewood Gulch Comp. Station, Colorado

NOXIOUS WEED LOCATIONS

Key:

- Milepost Marker (MP38)
- Noxious Weed Area
- Noxious Weed Point
- Proposed Pipeline

0 — 2000 Scale in Feet

Prepared by:

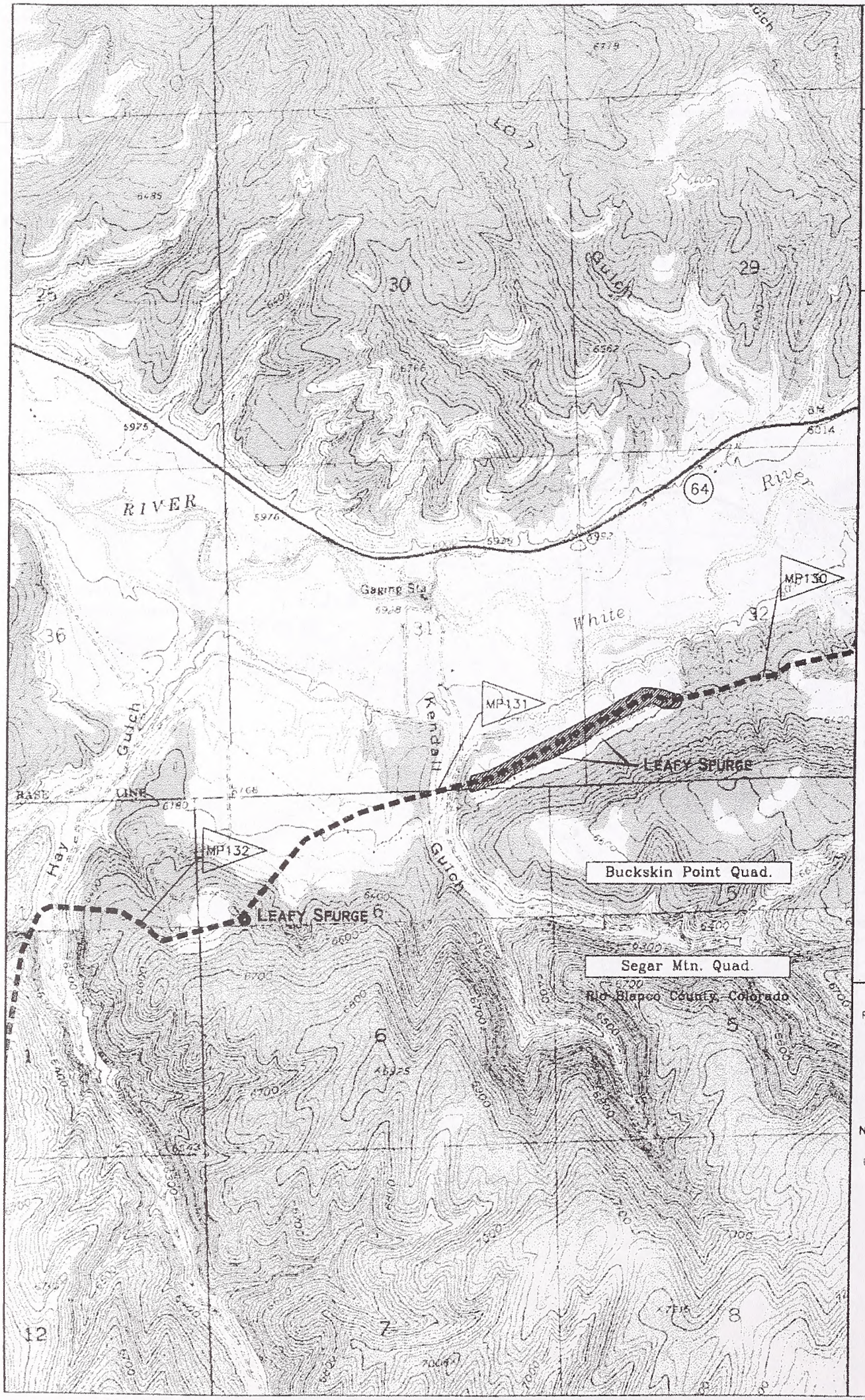
BIO-RESOURCES, INC.
Logan, Utah

Notes:

Date: January 3, 2005

NOXIOUS WEED LOCATIONS

MAP 5.



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PROPOSED PICEANCE BASIN EXPANSION PROJECT

233A 24" NATURAL GAS PIPELINE

Wamsutter, Wyoming to Greasewood Gulch Comp. Station, Colorado

NOXIOUS WEED LOCATIONS

Key:

Milepost Marker

MP38

Noxious Weed Area

Noxious Weed Point

Proposed Pipeline

0 2000

Scale in Feet

N

Prepared by:

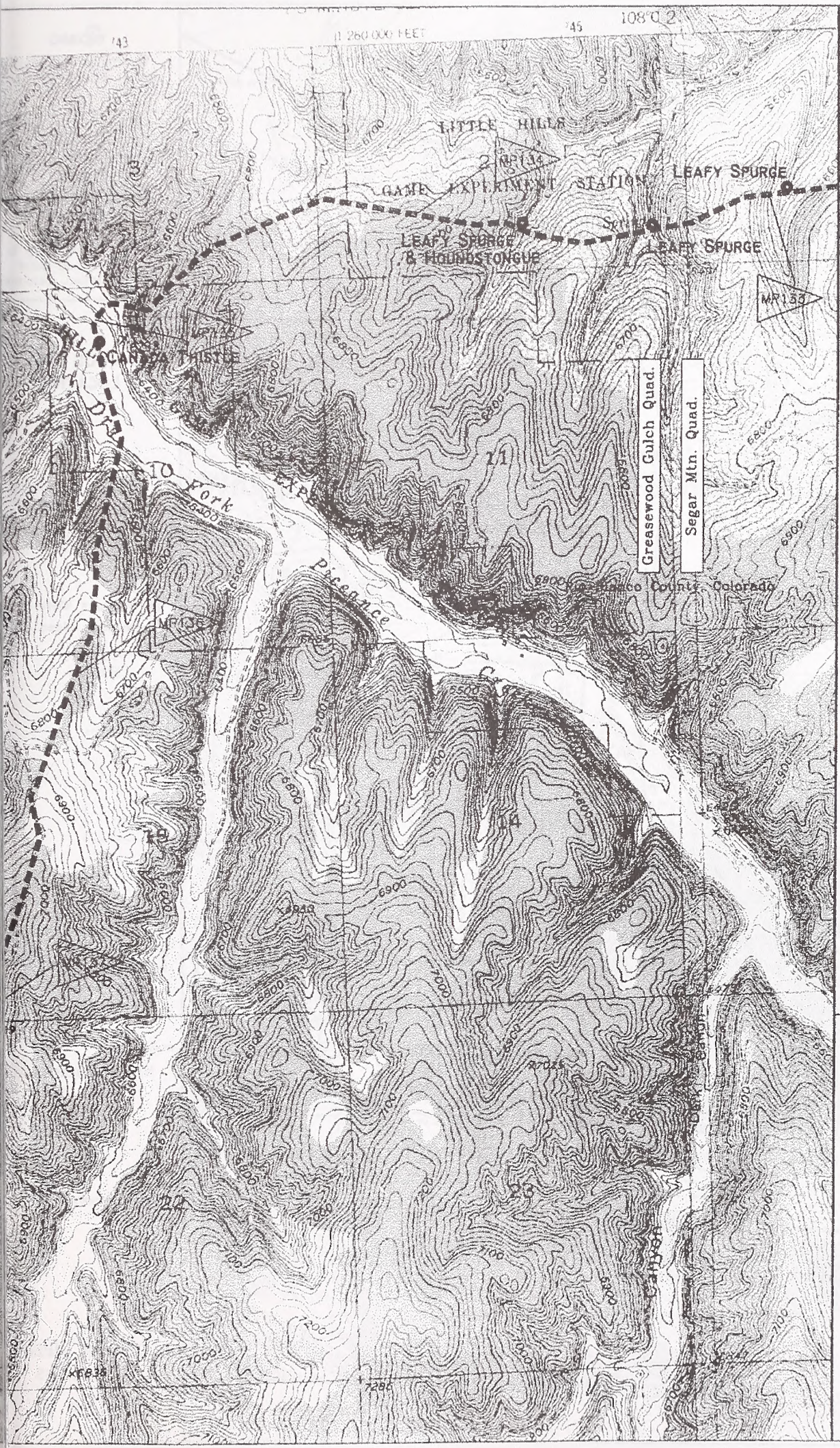
BIO-RESOURCES, INC.
Logan, Utah

Notes:

Date: January 3, 2005

NOXIOUS WEED LOCATIONS

MAP 6.



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PROPOSED PICEANCE BASIN EXPANSION PROJECT

233A 24" NATURAL GAS PIPELINE

Wamsutter, Wyoming to Greasewood Gulch Comp. Station, Colorado

NOXIOUS WEED LOCATIONS

Key:

Milepost Marker

MP38

Noxious Weed Area

Noxious Weed Point

Proposed Pipeline

0 2000

Scale in Feet

N

Prepared by:

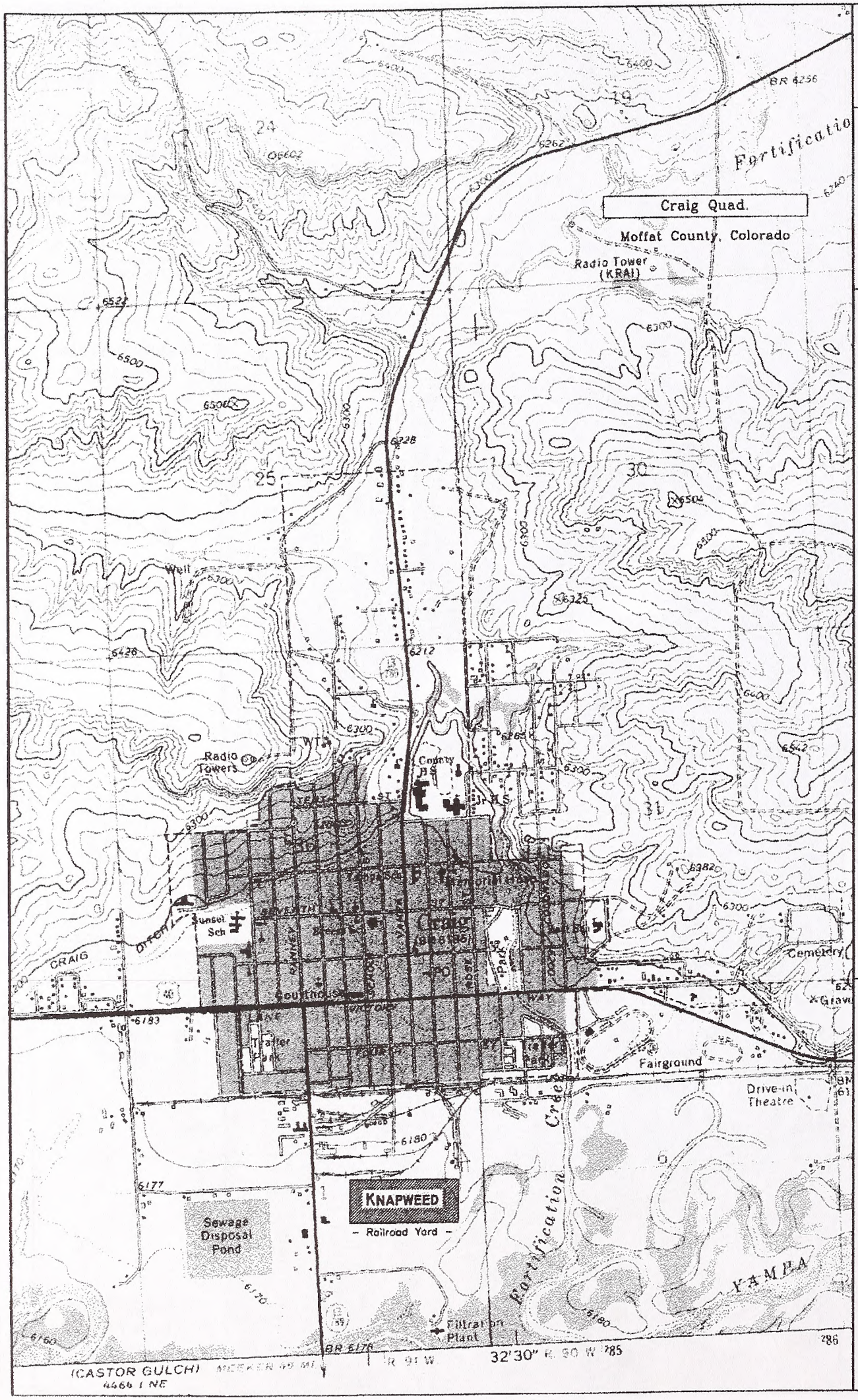
BIO-RESOURCES, INC.
Logan, Utah

Notes:

Date: January 3, 2005

NOXIOUS WEED LOCATIONS

MAP 7.



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PROPOSED PICEANCE BASIN EXPANSION PROJECT

233A 24" NATURAL GAS PIPELINE

Wamsutter, Wyoming to Greasewood Gulch Comp. Station, Colorado

NOXIOUS WEED LOCATIONS

Key:

Milepost Marker
MP38
Noxious Weed Area
Noxious Weed Point
Proposed Pipeline

0 2000
Scale in Feet

Prepared by:
BIO-RESOURCES, INC.
Logan, Utah

Notes:

Date: January 3, 2005

NOXIOUS WEED LOCATIONS

MAP 8.

APPENDIX H

WIC'S CONSERVATION MEASURES PLAN

THIS PLAN IS PART OF THE BLM'S DRAFT PLAN OF DEVELOPMENT (POD). SECTIONS OF (OR ATTACHMENTS TO) THE POD REFERENCED IN THIS PLAN ARE NOT INCLUDED IN THIS APPENDIX.

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CONSERVATION MEASURES PLAN

1.0 INTRODUCTION

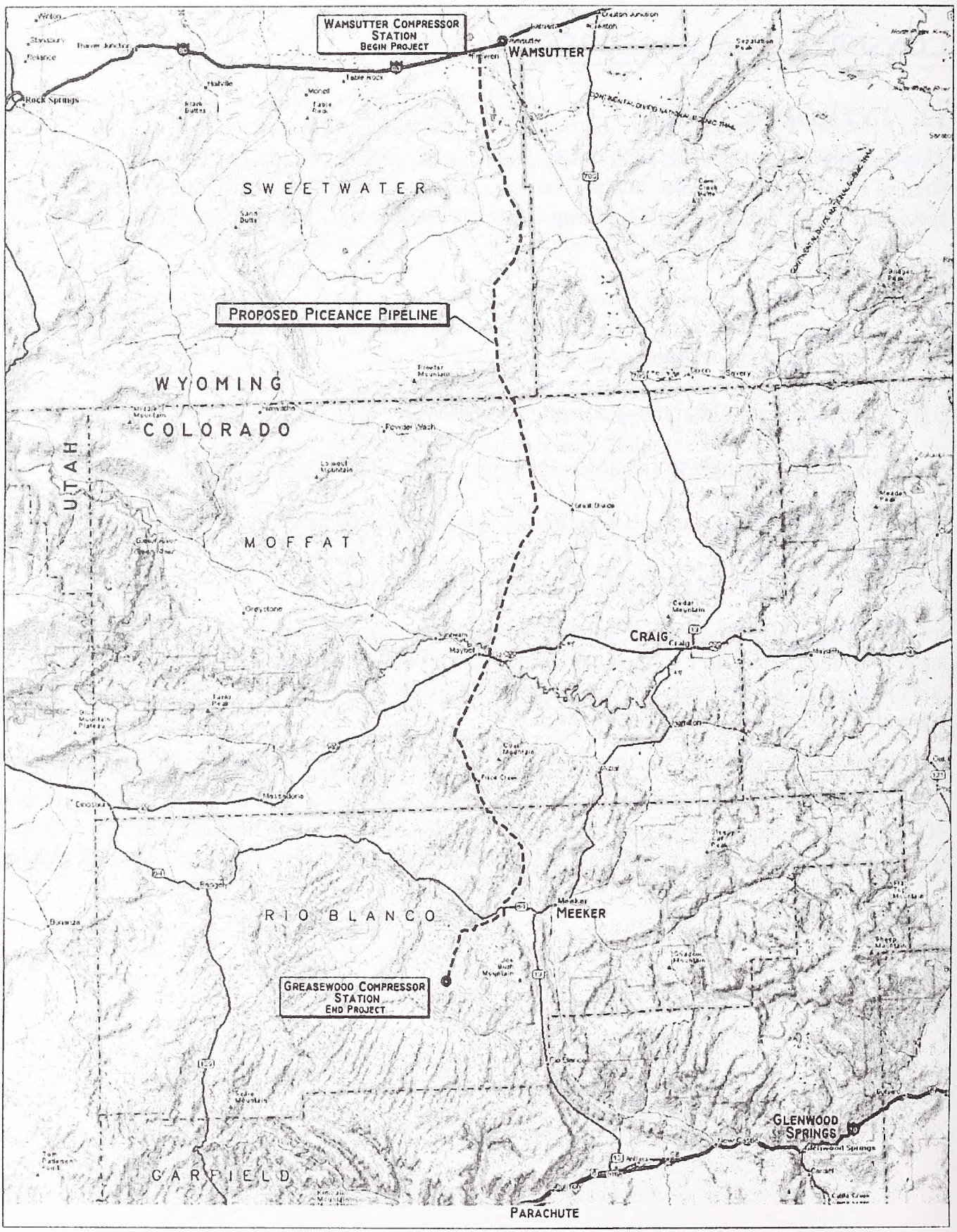
This document describes the potential impacts that the proposed Piceance Basin Expansion Natural Gas Pipeline (Figure 1) would have on federally listed threatened and endangered species of plants and animals, including candidate species and species proposed for listing.

This plan includes:

- A project description, including purpose and need, project facilities and proposed construction procedures.
- A description of habitat in the project area.
- A listing of sensitive species in the project area, including their status.
- Potential direct, indirect and cumulative impacts to these species.
- Suggested "likely to affect" or "not likely to affect" findings for species of concern.

Information in this Conservation Measures Plan was obtained from the results of biological surveys of the project area in summer 2004, appropriate literature and file searches, and agency consultation. Biological surveys conducted by Bio-Resources on the Uinta Basin Lateral in 1991 were also used as a source of information.

The 2004 biological surveys included plant community mapping; wetlands surveys; general wildlife habitat mapping; and surveys for threatened, endangered and sensitive species. An area 300 feet wide along the proposed pipeline centerline as staked at the time of field data collection was surveyed, along with other areas that would be impacted during construction of the pipeline.



elpaso
Colorado Interstate Gas Company

FIGURE 1 PICEANCE BASIN EXPANSION PIPELINE - GENERAL LOCATION MAP.

2.0 GENERAL PROJECT DESCRIPTION

2.1 PURPOSE AND NEED

In response to increasing natural gas production in the Piceance Basin in western Colorado, Wyoming Interstate Company, Ltd. (WIC) conducted an open season during June 2004 seeking interest in transportation capacity from the Greasewood Hub[1] located in Rio Blanco County, Colorado to a new interconnect located at CIG's Wamsutter Compressor Station[2] in Sweetwater County, Wyoming. As a result, WIC executed a precedent agreement with Williams Power Company, Inc. ("Williams"), a Piceance Basin gas producer, for the transportation on the Piceance Basin Expansion Project facilities. The project will be comprised of approximately 141.7 miles of 24" O.D. pipeline, approximately 1,650 site horsepower ("hp") compression at the Greasewood Hub, and metering facilities at both the Greasewood Hub in Rio Blanco County, Colorado and the Wamsutter Compressor Station in Sweetwater County, Wyoming. The Piceance Basin Expansion Project will be designed to receive and transport up to 350,000 Dth per day from the Greasewood Hub to the Wamsutter Compressor Station. The capital cost for the Piceance Basin Expansion Project is approximately $120,000,000.

2.2 PROPOSED FACILITIES

2.2.1 Piceance Basin Expansion Pipeline

WIC proposes to construct a new 141.7-mile-long 24"O.D. steel natural gas pipeline with a maximum operating pressure of 1480 psi (233A-24"). The pipeline begins at the Wamsutter Compressor Station (MP 0.0), located in Section 37, T20N, R94W, Sweetwater County, Wyoming, and ends at the Greasewood Compressor Station (MP 141.7), located in Section 8, T2S, R96W, Rio Blanco County, Colorado (Figure 1, Table 1). The pipeline route traverses Sweetwater County, Wyoming (MP 0.0 to MP 51.9), Moffat County, Colorado (MP 51.9 to MP 110.4) and Rio Blanco County, Colorado (MP 110.4 to MP 141.7) The line parallels CIG's existing Uinta Basin Lateral (UBL) for most of its route (MP 0 to MP 105.2). From MP 105.2 the route follows a new alignment through Coyote Basin to the Moffat County-Rio Blanco County line (MP 110.4). The new route then traverses Strawberry Creek Valley in Rio Blanco County to the southeast, then south, then southwest to its crossing of the White River (MP 127.7). From the south side of the river it traverses an existing powerline, paralleling the river in a westerly direction until it intercepts a Public Service pipeline; then follows it on a southerly route into the Greasewood Compressor Station.

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1 The Greasewood Hub is a convergence point for various interstate pipelines including Colorado Interstate Gas Company's ("CIG"), Transcolorado Gas Transmission Company, Questar Pipeline Company, as well as numerous pipeline gathering systems located in the Piceance Basin area.

2 Currently, WIC's mainline, i.e., the 36" O.D. Line No. 124, interconnects with CIG's 22" and 24" O.D. Rock Springs to Denver Mainline System (Line Nos. 5A and 5B) at the Wamsutter Compressor Station.

Table 1. Piceance Basin Expansion Pipeline Facilities					
Facility	**Pipeline Diameter and Type**	**Approximate Length (miles)**	**Milepost**	**State**	**County**
233A-24" Piceance Basin Expansion Pipeline	24" Mainline	141.7	0.0-51.9	Wyoming	Sweetwater
			51.9 – 110.4	Colorado	Moffat
			110.4 – 141.7	Colorado	Rio Blanco

The supply of natural gas will be delivered to this location by existing pipelines, primarily from wells in the Roan Cliffs/Plateau area of Garfield County, Colorado. Approximately 1650 hp of new compression will be added at the Greasewood Compressor Station as a required part of the project.

WIC has located its proposed pipeline for the most part to the east or south of existing pipelines in order to facilitate a south-to-north construction direction and to have the spoil side closest to existing pipe. WIC is asking for a nominal 85-foot-wide construction right-of-way. The 50-foot-wide working side of the right-of-way will normally be on the east side of the proposed centerline. The 35-foot-wide spoil side will normally be on the west side of the proposed centerline. In addition, the limits of the construction spreads are set to allow for mitigation of cultural sites on the north end of Spread 1; the contractor will begin construction on the south end (MP 141.7) and work north while mitigation of cultural sites is completed to the north (from MP 99 to the north). Construction will be completed in two spreads: Spread 1, the southern spread, will begin at the existing Greasewood Compressor Station and extend to Moffat County Road No. 8 (MP 75.6); Spread 2 would begin at this point and extend north to Wamsutter Compressor Station.

Beginning at the Greasewood Compressor Station, Spread 1 will proceed northeasterly for 10.7 miles, parallel to and generally 50 feet west and north from an existing pipeline owned by Public Service Company (MP 131.3 to 141.7). The new pipeline will parallel this existing pipeline crossing across Dry Fork Piceance Creek (MP 135.0) and through the Piceance Creek State Wildlife Area, Little Hill Experiment Station. Just south of the White River, the new pipeline will parallel an existing power line and will follow that line to a point in Section 27, T1N, R95W (MP 127.-127.3, 128.5-128.6 and 130.3-130.). The proposed route then turns northerly and extends across the White River, in Section 27 (MP 127.7). This location was selected to provide a straight, 90 degree crossing of the river away from horseshoe curves common in the area and to avoid extensive wetlands and hay fields. The location was also selected to minimize the removal of cottonwood trees at the river crossing. The area from MP 141.7 through MP 126 is big game critical winter range with a high density concentration of animals and has a No Activity restriction from December 1 through April 15. In conducting the crossing of this river, WIC proposes that construction will directionally drill the river. A detailed construction drawing with site-specific stipulations is located in the Alignment Sheet DWG 233A-53A-1 (Appendix A). WIC proposes to build a temporary bridge with clean rock and gravel, flumes and possibly mats in the river to allow large vehicles right-of-way access without having to be transported

around the crossing. Construction on either side of the river will be standard for the type of terrain and soil present. Extending northerly, then northwesterly from the White River, the new pipeline will be laid generally in the Strawberry Creek Valley, on the west side of the valley. Through much of this distance, the new line will be west and generally parallel to County Road 7 by one-half to one mile. At MP 105.2, the line will begin to parallel CIG's existing UBL natural gas pipeline, normally on the south and east side of the existing line. Through the area along Deception Creek (MP 99 to 102), in many places, WIC proposes to place the new pipeline between the existing UBL line and an existing pipeline owned by Kinder Morgan, Inc. In locations through this area, where space allows, the new line will be placed 25 to 50 feet from the existing UBL and Kinder Morgan pipelines. CIG will monitor flows in the UBL during this construction to allow equipment to operate over the pipe when necessary. Once north of the canyon along Deception Creek, the new pipeline will parallel the existing UBL line.

From MP 82 to MP 96.6 WIC's route is in close proximity to the proposed Entrega pipeline. WIC has located its proposed pipeline so as to maintain a minimum 50-foot separation between the two proposed lines in this area. However, as the construction areas overlap, timing could cause construction conflicts between the two lines. The conflict will be resolved in that the second pipeline company will not construct in a specific area until the first company has completed construction. North of MP 82, the proposed Entrega line is on the west and opposite side of the UBL from the proposed WIC Line, thus eliminating possible construction timing conflicts. WIC would prefer for both construction and operating purposes to have the Entrega route on opposite sides of El Paso's UBL Pipeline wherever possible.

The proposed route continues northerly across the Bitter Brush State Wildlife Area. The area from MP 99 to MP 82 is in high density critical winter range with a No Activity restriction from December 1 through April 15. It crosses and deviates from the UBL to the west at MP 90 and moves into the sand dunes west of Deception Creek. The line crosses back to the east side of the UBL at MP 88.2. The proposed route then crosses the Yampa River (MP 87.6) in Section 33, Township 7 North, Range 95 West, Moffat County, Colorado. WIC proposes to directionally drill the Yampa River due to federally protected fishes occupying this reach. In order to prevent transporting heavy construction equipment around the crossing, a bridge similar to that built on the White River will be built soon after construction kickoff. This bridge will likely require two flatbed rail cars or similar bridging (assuming an 80-foot length), necessitating a gravel or mat platform mid-river. A detailed construction drawing with site-specific stipulations is located in Alignment Sheet DWG 233A-37A-1 (Appendix A). From the Yampa River, the line continues parallel to the UBL line across State of Colorado Land Trust lands (MP 85.9-87.5). For these lands, WIC has developed a site-specific construction plan in conjunction with staff of the Colorado State Lands Commission (See Alignment Sheets DWGs 233-A-036A, 233-A-037C, Appendix A). This spread will end at Moffat County Road 8 (MP 75.6).

WIC proposes that Spread 2 will parallel the existing UBL line for the remaining length of the project to Wamsutter Compressor Station, 75.6 miles. Generally, the new pipeline will be laid approximately 50 feet from the UBL line, though in some areas containing sensitive resources and restricted space, this distance will be reduced to 20 to 25 feet. The line will cross the Little Snake River (MP 53.1) in Section 20, Township 12 North, Range 94 West, Moffat County, Colorado. WIC proposes to open cut this river within a 24-hour time frame and construction schedule. In order to prevent transporting heavy construction equipment around the crossing, a

bridge similar to that built on the White River will be built soon after construction kickoff. This bridge will likely require one flatbed rail car or similar bridging (assuming an 80-foot length), necessitating a gravel or mat platform on both banks. A detailed construction drawing with site-specific stipulations is located in Alignment Sheet DWG 233A-22A-1 (Appendix A). Rough terrain on the north side of the Little Snake River will require portions of the line to be within 25 feet of the UBL. Although construction through the breaks will be difficult, the alignment moves the route further away (than a previously proposed alignment in this area) from a previously active bald eagle nest on the Little Snake to the east. In Section 18, Township 12 North, Range 94 West, the line crosses from Moffat County, Colorado, to Sweetwater County, Wyoming (MP 51.9). Through Sweetwater County, Wyoming, the line will continue to parallel the UBL line on the east side at approximately 50 feet. The new line will cross Interstate Highway 80 in Section 31, Township 20 North, Range 94 West, and will terminate at the existing Wamsutter Compressor Station in Section 27 (T20N, R94W). If permitting timing allows, WIC proposes to schedule construction to avoid potential impacts to sage grouse breeding and nesting periods, raptor nesting, and minimize critical big game winter range concerns. Construction is scheduled to begin in September 1, 2005, or sooner per granting of the FERC Certificate; the latest starting date is November 1, 2005. Construction will be complete by February 28, 2006. Construction in winter game areas may overlap with the beginning of seasonal big game concerns. In such instances, WIC will request a variance from seasonal restrictions from the Bureau of Land Management on public lands, and from the appropriate authority on private lands.

2.2.2 Aboveground Facilities

Pig launcher facilities and interconnects for WIC's and CIG's existing lines will be installed at MP 0.00, located within the existing Wamsutter Compressor Station yard, in Sweetwater County, Wyoming. Pig receiver and launcher facilities will be installed at MP 54, in Moffat County, Colorado. This facility, based on past experience with the UBL, alleviates the need for a 24-hour test period, resulting in more efficient operation of the line. A pig receiver and interconnect will be installed at MP 141.7 at the Greasewood Compressor Station, in Rio Blanco County, Colorado. A total of nine block valves (each trap set counts as 1 block valve) will be located along the pipeline per Table 2. Fenced enclosures measuring 45' x 75' will be installed around each valve assembly that is not enclosed within a compressor station or launcher/receiver site. The fence enclosures will be contained within the limits of the permanent right-of-way. Four interconnects measuring 150' x 200' will be installed within the existing Wamsutter and Greasewood Compressor Stations (Table 3).

Table 2. Block Valve Locations along the Proposed Piceance Basin Expansion Pipeline

Valve No.	Location Description	MP	County	State	Site Size
1	Existing Wamsutter Compressor Station yard	0.0	Sweetwater	WY	45 acres
2	North and west of Barrel Springs Draw adjacent to UBL valve site.	19.55	Sweetwater	WY	45' x 75'
3	North and east of Lower Willow Creek	38.1	Sweetwater	WY	45' x 75'
4	Also Launcher/Receiver Site, South of Little Snake River on County Road 4, adjacent to UBL valve site	54.0	Moffat	CO	150' x 200'

Table 2. Block Valve Locations along the Proposed Piceance Basin Expansion Pipeline					
Valve No.	Location Description	MP	County	State	Site Size
5	County Road 6 adjacent to UBL valve site	73.0	Moffat	CO	45' x 75'
6	South of Yampa River, north of U.S. Highway 40, adjacent to UBL valve site	88.0	Moffat	CO	45' x 75'
7	Entrance to Keystone Ranch	106.0	Moffat	CO	45' x 75'
8	Buckskin Mesa	123.85	Rio Blanco	CO	45' x 75'
9	Existing Greasewood Compressor Station yard	141.7	Rio Blanco	CO	9.70 acres

Table 3. Interconnect Locations along the Proposed Piceance Basin Expansion Pipeline						
Facility	MP	County	State	Interconnect Facility Size	Approximate Dimension	Property Description
Williams	141.7	Rio Blanco	CO	.69 acres (1)	150' x 200'	Section 5-2S-96W
TransColorado	141.7	Rio Blanco	CO	0.69 acres(1)	150'x200'	Section 5-2S-96W
WIC	0	Sweetwater	WY	.69 acres (1)	150' x 200'	Section 27-20N-94W
CIG	0	Sweetwater	WY	.69 acres (1)	150' x 200'	Section 27-20N-94W
(1) Acreage included in the disturbed areas associated with the compressor facilities at Greasewood Compressor Station as listed below, or within the Wamsutter Compressor Station Site located in Section 27-20N-94W, Sweetwater County, Wyoming						

In addition to the mainline (block) valves and the pig launcher/receiver facilities previously mentioned:

- Approximately 1650 hp of new compression will be installed at the inlet to the WIC Piceance Basin Expansion. The new compression will be located entirely within the existing Greasewood Compressor Station. Exact site-rated horsepower will ultimately depend on the type of compressor unit selected for the site (Table 4).

- Measurement stations will be located at the Greasewood and Wamsutter compressor stations.

- A possible compressor station may be constructed on the TransColorado pipeline near Greasewood. Although this station will be constructed by others, it is a necessary connected action in order to meet demands to transport gas out of the Uintah County, Utah into WIC's Piceance Basin Expansion.

Table 4. Compressor Facilities for the Proposed Piceance Basin Expansion Pipeline					
Facility	Approximate MP	County	State	New / Modified	Nameplate Horsepower
Greasewood Compressor Station	141.7	Rio Blanco	CO	New	1650

2.2.3 Location Maps

Full-size copies of the following drawings are included in Appendix A:

WIC Piceance Basin Expansion - 7.5-minute-series USGS maps:
Wyoming Route Maps No's 1 to 10
Colorado Route Maps No's. 11 to 25

Wamsutter Plot Plan	233A-0001A
Little Snake River Crossing Plan	233A-22A-1
Gate 4 Pigging Facility	233A-0023A
Colorado Trust Lands Plan	233-A-36A
Yampa River Crossing Plan	233A-37A-1
Colorado Trust Lands Plan	233-A-37C
White River Crossing Plan	233A-53A-1
Greasewood Plot Plan	233A-0060A
Hydrostatic Test Plan	233Q-1

2.3 CONSTRUCTION PROCEDURES

2.3.1 Pipeline

Construction of the Piceance Basin Expansion will begin after all private rights-of-way, state and federal rights of way, and permits have been acquired for the project and WIC has obtained a Certificate of Public Convenience and Necessity from the FERC. Company personnel, construction contractor and environmental inspector will discuss and implement the prepared procedures prior to construction. WIC personnel, WIC's chief inspector, construction contractor and environmental inspectors will receive copies of:

- All conditions placed on construction that have been agreed to by WIC and the landowners.
- Conditions contained in the required permits, the project Plan of Development, as well as the FERC Upland Erosion Control, Revegetation and Maintenance Plan and FERC Wetland and Waterbody Construction and Mitigation Procedures.
- Any alterations to Plans and Procedures as approved by the appropriate agencies, including FERC. Proposed alterations have been included in the Plan and Procedures sections of the Plan of Development (Appendix B). The proposed alterations are shown at the appropriate location in the text of the Plan or the Procedures, in ***bold, italicized print***. Also note that additional information on particular construction methodology that

does not change the meaning of the Plan or the Procedures has been included at the appropriate location in the text, but is shown only in **bold print**.

Conditions and requirements will be reviewed with the installation contractor and procedures established to ensure personnel are familiar with the conditions and that they will be adhered to during construction.

WIC is requesting a right-of-way width of 85 feet to allow for grading due to the rugged terrain and for storage of topsoil and to provide adequate space for spoil from the ditch, allowing a buffer outside the spoil storage for either clods that might roll off or extra space required for very sandy material. Topsoil will be salvaged from the ditch line in rangeland, pasture and agricultural areas (Plan 2A, Appendix B), except on sideslopes, steep terrain or at landowner request where full right-of-way topsoiling will take place per FERC's Plan (Plan 2A, see notes, Appendix B). In level areas, topsoil will be placed on the working side of the right-of-way, adjacent to the ditch, by rolling up an unconsolidated pile with a dozer or a motor grader. The pile will be flattened using the blade of a motor grader. Then the flattened pile will be compacted by driving back and forth over it with the tires of the motor grader. This flattening and compaction will accomplish two things. First, it will provide a firm, flat surface to safely store pipe. Second, it will produce a compact, low profile topsoil pile that will provide optimal protection from wind erosion. Because the pipe will be strung, cribbed-up and stored over the topsoil, the pipe's location will physically protect the topsoil from normal pipeline traffic (e.g. stringing trucks, pickups, tracked equipment moving down the right-of-way). In a few cases, tracked equipment will be on the topsoil pile (e.g. one track of the lowering in tractor). In our experience, this minimal disturbance to a compacted pile does not cause significant topsoil loss. In the case of extremely fine powdery soils with no ground moisture, wheel compaction with a motor grader may not be possible. WIC does not expect this situation on the Piceance Basin Expansion due to soil types and moisture at the time of construction. However, if such a situation occurs, the topsoil pile will be sprayed by a water truck to produce crusting of the soil. This then will provide protection from wind erosion. It will be the Environmental Inspector's responsibility to evaluate the compaction of the topsoil pile and to determine if there is a need for watering. The permanent right-of-way will generally be 50 feet in width for the pipeline, generally extending 25 feet on either side of the pipeline. The width of right-of-way will be reduced to 75 feet in wetlands and forested riparian areas (Plan 2D, Appendix B).

The typical pipeline construction sequence is located in Appendix B, Plan 1.

Marking the Right-of-Way

Proposed construction locations and access routes will be identified and marked prior to any construction activity. Only approved locations and routes will be used for construction. Alignment identification will include marking the centerline of the pipeline at line-of-sight intervals, at points of intersection (including offset stakes marking the edges of the right-of-way), and at all known underground facilities (including drain tiles and irrigation systems that parallel or cross the pipeline route). Potentially affected foreign appurtenances and utilities (e.g., telephone poles, foreign line crossings) will be properly identified. WIC also will clearly mark environmentally sensitive areas and restrict any construction activities or equipment from these

areas. This will be accomplished with both flagging and signage. Pipeline locators and other appropriate means will be used to locate underground facilities.

Clearing and Grading

The temporary construction right-of-way will be cleared of any large shrubs and obstructions and graded to provide a relatively level surface to accommodate construction equipment, while preserving natural drainage to the extent possible. A brush hog will accomplish most of the clearing of brush and shrubs. Following construction, WIC will retain up to 50 feet as the permanent right-of-way.

Clearing on the spoil side will be limited to that which is necessary for construction activity. Spoil, brush, roots, and rocks removed from the working side of the right-of-way will be windrowed on the outer edge of the temporary right-of-way during construction. Topsoil will be segregated over the ditchline and stored separately. This approach would apply to the entire project, not just cultivated lands. However, topsoil will not be segregated in wetlands that are saturated. All existing permanent survey monuments and reference monuments within the pipeline right-of-way will be protected against disturbance during construction or replaced afterward. Vegetation buffers of appropriate width will be left between any construction areas and waterbodies and wetlands.

Trenching

Rotary wheel ditching machines, backhoes, or rippers will be used for new pipeline construction to excavate a trench of sufficient depth to provide the minimum depth of cover required by the US Department of Transportation. Spoil typically will be deposited on the non-working side of the right-of-way. In areas where terrain will not allow, the ditch will be trenched using trackhoes. Trackhoes and/or hand tools will be used to expose the existing pipeline(s) at utility crossings and in areas where construction will be in close proximity to an existing line. Because the majority of construction sites occur within the previously disturbed right-of-way, blasting other than in the ditch line should be minimized. Should rock or rocky soil be encountered and blasting is not feasible, ripping may be required or other mechanical means of rock removal may be required. Blasting in the proximity of existing pipeline facilities will require controlled blast and monitoring. Ground disturbance associated with construction of the project is primarily limited to six feet below the existing ground surface, and, therefore, above bedrock in most locations. If bedrock is encountered during construction along a pipeline crossing, WIC's preferred procedure will be to fracture and excavate the bedrock using hydraulic construction equipment.

Pipeline Depth

WIC will ensure that the existing pipeline and any new pipeline meet or exceed the minimum depth of cover over the pipeline required by the USDOT (e.g., 30 to 36 inches in normal soils). For new pipeline construction, crossing of foreign pipelines will generally require the pipeline to be buried at greater depths. Where required, 12 to 24 inches of clearance will be maintained when crossing foreign pipelines, cables, or other similar structures. Pipeline burial depths in areas requiring special construction techniques through rock will be in accordance with the requirements of 49 CFR, Part 192.

Pipe Laying

Stringing, bending, welding, and lowering-in of the new pipeline typically will occur on the working side of the trench. Pipe segments will be strung along the right-of-way parallel to the trench, bent to conform to the trench contour, aligned, welded together, and lowered into the trench. All new pipeline welds (100 percent) will be inspected both visually and radiographically by certified weld inspectors, repaired as necessary, and coated. New pipeline segments will be inspected to locate and repair any faults or voids in the pipeline coating (holiday detection) prior to being lowered into the trench. If rock conditions are encountered, the trench bottom will first be padded with a layer of rock-free soil. Under no circumstances will topsoil from the right of way be used as padding material.

Backfilling

Once the pipeline has been installed in the trench, soil of padding quality will be placed over the pipe to protect the coating. The trench will then be backfilled using previously excavated materials. Segregated topsoil will be restored last, to its original grade and contour. The right-of-way will be re-graded to its approximate pre-construction contour, seeded, fertilized, and mulched, as appropriate. In non-cultivated areas, a soil mound may be left over the ditch line to allow for soil settlement.

Staging Areas

Temporary use areas are proposed for use as extra workspace, storage, and/or staging area (Table 5).

Table 5. Staging Area Locations along the Proposed Piceance Basin Expansion Pipeline

MP	County/State	Notes	Area of Disturbance (acres)
0.0	Sweetwater, Wyoming	Wamsutter	13.22
4.2	Sweetwater, Wyoming	Frewan Lake	2.07
52.1	Moffat, Colorado	Sweetwater/Moffat	2.04
75.5	Moffat, Colorado	Spring Creek	13.77
95	Moffat, Colorado	Deception Creek	10.19
141.7	Rio Blanco, Colorado	Greasewood	20.61

Restoration and Cleanup

Restoration of terrain and revegetation will be completed in accordance with the Reclamation Plan for the Piceance Basin Expansion (Appendix D). Where construction activities occur in areas of rugged terrain and two-toning or cutting to grade are required, stockpiled topsoil will be spread to cover the disturbed area. River, stream, and wash banks cut during trenching operations will be restored to their original slope and grade, and erosion control measures installed. Soil

compaction will be alleviated, where necessary. All work areas will be restored as close as practicable to their original condition.

Pipeline markers and cathodic protection stations will be located along the existing pipeline and are generally located at regular intervals within the permanent right-of-way and adjacent to road crossings.

2.3.2 Aboveground Facilities

Permanent aboveground facilities will be constructed at those locations previously identified and within the specified right-of-way and temporary use areas.

2.3.3 Special Construction Techniques

Rugged Topography

Where construction sites are located within areas of steep side slopes, two-toning (the work area will be terraced during construction) may be required. All drainage areas crossed by the pipeline will be maintained free of obstructions. Drainage channels will be restored following the completion of construction operations.

Road and Railroad Crossings

The project will require construction activities at approximately 58 public and private road crossings as shown on the alignment sheets. Improved or frequently traveled roads will be bored or tunneled in accordance with USDOT requirements at 49 CFR, Part 192, and/or in compliance with road crossing permit requirements. Minor or infrequently traveled gravel or dirt roads may be open-cut. Where roads are open-cut, proper barricades, lights, or warning signs will be in place, and traffic flow will be maintained. Road crossings will be uncased, unless otherwise required by permit. Excavation depth and pipeline cover for each crossing will vary depending on the terrain, length of crossing, and other factors. Following pipe placement, the trench will be backfilled and the roadbed returned to original or better condition. One existing railroad will be crossed by the pipeline. This crossing is planned to be bored in accordance with the requirements of 49 CFR, Part 192, and the railroad owner's crossing requirements.

Wetland Construction

WIC proposes to conduct construction at all wetlands (Procedure 9, Appendix B) in compliance with the WIC's Wetland and Waterbody Construction and Mitigation Procedures (Appendix C).

Waterbody Construction

WIC proposes to conduct construction at all waterbodies except the White, Yampa and Little Snake Rivers in compliance with the WIC's Wetland and Waterbody Construction and Mitigation Procedures. While the plans at the White, Yampa and Little Snake Rivers will comply with the Procedures, WIC has prepared site-specific plans for these crossings, which plans are included with this filing (Appendix A, Alignment Sheets, 233A-22A-1, 233A-37A-1,

233A-53A-1). WIC proposes to construct under the White and Yampa Rivers using Horizontal Directional Drill methodology (Procedure 7, Appendix B).

Bob Hughes Creek and Deception Creek Area

Between MP 96.5 and MP 105.1, WIC proposes to locate the Piceance Basin pipeline along and parallel with CIG's existing UBL Pipeline and Kinder Morgan's Rocky Mountain Pipeline. This area is characterized by steep drainages and narrow canyon terrain. Where possible, the Piceance Basin pipeline will be constructed at a location 50 feet east of the existing Uinta Basin Lateral or the Rocky Mountain Pipeline (Plan 2B, Appendix B). In locations where this is not feasible, WIC proposed to locate its line within 20 feet or less of one or both of the existing pipelines, generally between the two existing pipelines (Plan 2E, Appendix B). WIC will arrange with its affiliate, CIG, to restrict flows in UBL Pipeline during construction periods to allow heavy equipment to work over the CIG line. Spoil from the ditch will be cast over the Rocky Mountain pipeline and no equipment will move back and forth over that particular pipeline. Once construction is complete, flows in the Uinta Basin Lateral will resume at nominal levels.

State of Colorado Stewardship Trust Lands

Between MP 85.9 and MP 89.4, WIC's proposed pipeline will cross lands administered by the State of Colorado as Stewardship Trust lands under Amendment 16, passed in 1996 WIC has agreed to use site-specific requirements across these lands as shown on Alignment Sheet Drawings 233-A-36A and 233-A-37C, Appendix A. Construction notes on this Alignment Sheet specify requirements agreed upon with the State.

2.3.4 Hydrostatic Testing

Hydrostatic test water will be obtained from surface water and well water sources (Table 6). Intake points, discharge points, test sections and points of cascading are located on Alignment Sheet drawing 233Q-1, Appendix A. Table 6 also lists expected discharge volume.

Table 6. Currently Proposed Hydrostatic Test Water Volumes and Sources for the Piceance Basin Expansion

Manifold	Station From	Mile Post	Expected Discharge Volume (gallons)	Alternate Volumes (gallons)	Water Source
1	0+00	0.00		2,384,200	
1P	160+43	3.04		26,900	
1P	172+43	3.27	26,900	0	City/Well Water
1 - 2	1035+14	19.60	3,696,500	1,312,300	Little Snake
2 - 3	2640+00	50.00	397,890	2,000	Little Snake
3P	2800+75	53.04		26,900	
3P	2812+75	53.27	26,900	0	Little Snake
3 - 4	2812+75	53.27		397,900	
4 - 5	3401+57	64.42	1,356,170	2,170	Little Snake
5 - 6	3989+45	75.56		1,487,600	
6P	4621+30	87.52	31,400	0	Yampa
6P	4635+30	87.79		31,400	

Table 6. Currently Proposed Hydrostatic Test Water Volumes and Sources for the Piceance Basin Expansion					
Manifold	**Station From**	**Mile Post**	**Expected Discharge Volume (gallons)**	**Alternate Volumes (gallons)**	**Water Source**
6 - 7	4635+30	87.79	1,487,600	2,000	Yampa
7 - 8	5225+00	98.96	1,358,250	499,800	Yampa
8 - 9	5597+70	106.02		2,050,850	
9 - 10	6115+40	115.82	1,458,890	1,192,400	White River
10P	6734+80	127.55	31,400	0	White River
10P	6748+80	127.82		31,400	
10 - 11	6748+80	127.82		1,192,400	
11 - 12	6983+00	132.25	55,400	2,000	
12 - 13	7127+20	134.98	200,100		White River
13 - 14	7190+00	136.17	671,500	200,100	White River
14	7481+54	141.70		671,500	
Total Water Withdrawal At Little Snake River				5,477,460	
Total Water Withdrawal At Yampa River				2,877,250	
Total Water Withdrawal At White River				2,417,290	
Total Withdrawal From Rivers				10,772,000	

Two construction spreads will be used to build the Piceance Basin Expansion pipeline. The northern spread from the Wamsutter Compressor Station at MP 0.0 will end as the line crosses Moffat County Road 8, MP 75.6. Water for hydrostatic testing on this spread will be drawn from the Little Snake River located at MP 53.1. The quantity of water to fill this 76-mile long segment is approximately 16.81 acre-feet. The southern spread will begin at Moffat County Road 8 and end at the Greasewood Compressor Station, MP 141.7. Water for hydrostatic testing of this spread will be drawn from the Yampa River at MP 87.6 and the White River at MP 127.7. The quantity of water to fill this 66-mile-long segment is approximately 16.25 acre-feet. All water used for hydrostatic testing will be returned to the same drainage basin from which it was withdrawn. Test water will be used for a maximum of three months.

Water from the Little Snake, Yampa and White Rivers will be drawn out with a low pressure pump pumping into the suction side of a high pressure water pumps that will move the water into the pipeline. All the pumps will be set into fuel/oil containment areas. The low pressure pump will have screening on the suction hose to avoid collecting fish. The rate will be up to 2,500 gallons/minute ("gpm") depending on the pump size and horsepower. Any restrictions issued by the U.S. Fish and Wildlife Service for the protection of fishes will also be observed where any water is withdrawn.

The pipe for Piceance Basin Expansion will be new. Typically, hydrostatic test water will pick up some iron oxide (rust) from new pipe, depending on the total duration the water remains in the pipe. The quantity is likely to be fairly small and may give the discharge water a slight red color. The water may also pick up some sand or dirt left over from the installation. While night caps are always installed after a days work, dirt may still find its way into the pipe. All

hydrostatic test water will be discharged through a hay or straw bale dissipation device to slow down the velocity and to help pick up solids (Procedure 11, Appendix B). Any contaminants in the discharge water will likely be below the required minimums. To insure this conclusion, water will be collected and tested at a certified water testing laboratory. For this reason there is no plan to use any chemical treatment of the hydrostatic test water. The only physical treatment for the water will be the hay or straw bale dissipation device. The discharge locations will be into upland grassy areas to help avoid erosion issues. Water will be discharged into the basin from which it is extracted. However, WIC expects that mitigation for water usage will include a form of compensation for water lost during testing from these basins.

3.0 HABITAT DESCRIPTION

3.1 General Vegetation

The major vegetation types identified within the proposed Piceance Basin Expansion Pipeline corridor and associated locations and facilities include sagebrush scrub (SG), low shrub (LS), alkaline scrub (AS), grassland (G), pinyon/juniper (PJ), pasture (P), bitterbrush (BB), mountain brush (MB), and agricultural lands (AG). The major vegetation types characteristic of the proposed Piceance Basin Expansion Mainline and associated facilities are shown in Table 7 and on Maps 1-18, Appendix E.

Table 7. Length of Vegetation /Cover types within the Proposed Piceance Basin Expansion Right-of-Way

Vegetation Type	Length (miles)
Sagebrush scrub (SG)	83.5
Low shrub (LS)	16.1
Alkaline scrub (AS)	10.4
Grassland (G)	8.3
Pinyon/juniper (PJ)	8.1
Pasture (P)	5.4
Bitterbrush (BB)	5.1
Mountain brush (MB)	3.2
Agriculture (AG)	1.5
Roads	0.1
TOTAL	**141.7**

Sagebrush scrub (SG) – The sagebrush scrub vegetation type is characterized by a dominant canopy of sagebrush (*Artemisia* or *Seriphidium*) shrubs with an herbaceous understory of grasses and forbs. The sagebrush scrub vegetation type occupies the largest portion of the proposed pipeline corridor with 59 percent of the proposed alignment traversing this vegetation type. The diverse sagebrush scrub vegetation type includes plant communities with shrub covers of basin big sagebrush (*Artemisia tridentata* or Seriphidium tridentatum ssp. Tridentata), mountain big sagebrush (*Artemisia tridentata* or *Seriphidium tridentatum* ssp. *Vaseyana*), Wyoming big sagebrush (*Artemisia tridentata* ssp. *Wyomingensis*) and viscid rabbitbrush (*Chrysothamnus viscidiflorus*). Black sagebrush (*Artemisia nova* or *Seriphidium novum*) plant communities occur on ridges. Basin big sagebrush and mountain big sagebrush are also mixed with Gambel oak

(*Quercus gambelii*), mountain snowberry (*Symphoricarpos rotundifolius*), serviceberry (*Amelanchier alnifolia*), or with pinyon pine (*Pinus edulis*) and Utah juniper (*Sabina* or *Juniperus osteosperma*). Basin big sagebrush can occur in more alkaline conditions in valley bottoms mixed with greasewood (*Sarcobatus vermiculatus*), rubber rabbitbrush (*Chrysothamnus nauseosus*), and four-wing saltbush (*Atriplex canescens*). Common grasses occurring in the sagebrush scrub vegetation type include western wheatgrass (*Pascopyrum smithii*), sandberg bluegrass (*Poa secunda*), great basin wildrye (*Elymus cinereus*), crested wheatgrass (*Agropyron cristatum*), cheatgrass (*Bromus tectorum*), Indian ricegrass (*Oryzopsis hymenoides*), and needle and thread (*Stipa comata*). Some common forbs occurring in the sagebrush scrub vegetation type include yarrow (*Achillea millefolium*), Louisiana wormwood (*Artemisia ludoviciana*), spreading fleabane (*Erigeron divergens*), slender buckwheat (*Eriogonum microthecum* var. *laxiflorum*), hairy goldenaster, (*Heterotheca villosa*), spurred lupine (*Lupinus caudatus, Lupinus argenteus*), thrifty goldenweed (*Haplopappus armerioides*), carpet phlox (*Phlox hoodii*), globemallow (*Sphaeralcea coccinea*) and Watson penstemon (*Penstemon watsonii*). Some of the weeds found in the sagebrush scrub vegetation type include burdock (*Arctium minus*), musk thistle (*Carduus nutans*), Canada thistle (*Cirsium arvense*), dandelion (*Taraxacum officinale*), and field bindweed (*Convolvulus arvensis*). The sagebrush scrub vegetation type is subject to livestock grazing. In areas that have been disturbed and denuded of vegetation, cheatgrass and central pricklypear (*Opuntia polyacantha*) increase dramatically.

Low shrub (LS) – Eleven percent of the proposed alignment traverses the low shrub vegetation type. This vegetation type is mainly located in Sweetwater County, Wyoming and consists of a dominant canopy cover of low shrubs such as fringed sagebrush (*Artemisia frigida*), black sagebrush, Wyoming big sagebrush, broom snakeweed (*Gutierrezia sarothrae*), and spiny horseweed (*Tetradymia spinosa*) on hills and in convex positions. The valley bottoms or concave locations will support Gardner saltbush (*Atriplex gardneri*), rubber rabbitbrush, and greasewood. The low shrub vegetation type also supports an herbaceous understory of grasses and forbs such as western wheatgrass, needle and thread, tansy aster (Macheranthera spp.) and longleaf phlox (*Phlox longifolia*). Halogeton (*Halogeton glomeratus*) is a common and abundant weed in the low shrub plant communities. The low shrub vegetation type is subject to livestock grazing.

Alkaline scrub (AS) – The alkaline scrub vegetation type occupies 7 percent of the proposed pipeline corridor. This vegetation type occurs in soils that are highly alkaline and support shrubs and herbaceous plants that can tolerate these conditions. A majority of this vegetation type is located in Wyoming, though the Bob Hughes Creek and Deception Creek areas also support the alkaline scrub vegetation type. This vegetation type consists of a canopy of alkaline tolerant shrubs with a sparse understory of herbaceous plant species. Shrubs common to this vegetation type include greasewood, four-wing saltbush, shadscale (*Atriplex confertifolia*), and rubber rabbitbrush. Common grasses include western wheatgrass, great basin wildrye, cheatgrass, Indian ricegrass, and needle and thread. Two common weeds in the alkaline scrub vegetation type include halogeton and peppergrass (*Lepidium perfoliatum*). This vegetation type is subject to livestock grazing.

Grassland (G) – The grassland vegetation type is found in 6 percent of the proposed pipeline corridor in small patches in both Colorado and Wyoming. This vegetation type is dominated by an herbaceous canopy of mostly grasses and some forbs. A small scattering of shrubs is also

found in the grassland vegetation type. Dominant grasses in this vegetation type include western wheatgrass, sandberg bluegrass, smooth brome (*Bromus* or *Bromopsis inermis*), cheatgrass, and Great Basin wildrye. Forbs encountered in the grassland vegetation type include yarrow, aster (*Aster* spp.), Louisiana wormwood, buckwheat (*Eriogonum* spp.), arrowleaf balsamroot (*Balsamorhiza sagittata*), contra stoneseed (*Lithospermum ruderale*), hairy goldenaster, spurred lupine, and woolly plantain (*Plantago patagonica*). Occasional shrubs include serviceberry, mountain sagebrush, viscid rabbitbrush, and mountain snowberry. The grassland vegetation type is subject to livestock grazing.

Pinyon/juniper (PJ) – The pinyon/juniper vegetation type is traversed by 6 percent of the proposed pipeline alignment and occurs intermittently from approximately MP 44-52 near the Wyoming/Colorado state line and again intermittently from MP 119 south to the Greasewood Compressor Station. A significant stand of pinyon/juniper between MPs 135-140, north of the Greasewood Compressor Station was destroyed by a fire in the summer of 2004. The pinyon/juniper vegetation type is characterized by a dominant canopy of pinyon pine or Utah juniper, and may or may not include a shrub layer of serviceberry, mountain snowberry, mountain sagebrush and viscid rabbitbrush, bitterbrush (*Purshia tridentata*) and mountain mahogany (*Cercocarpus ledifolius*). Common herbaceous plant species of this vegetation type include cheatgrass, Indian ricegrass, sandberg bluegrass, spurred lupine, hairy goldenaster, and fleabane (*Erigeron* spp.). The pinyon/juniper vegetation type supports livestock grazing.

Pasture (P) – The pasture vegetation type occupies 4 percent of the proposed pipeline corridor and is mainly located in valley bottoms along drainages but is also located in other locations throughout Colorado. This vegetation type includes areas dominated by herbaceous species, many of which are planted, but also includes jurisdictional wetland plant species. Since jurisdictional wetlands as a vegetation type would be too small to quantify in a meaningful way, and since some jurisdictional wetlands are adjacent to drainages that have significant areas of associated pasture, the wetland acreage is included in the pasture vegetation type. In areas where jurisdictional wetlands occur in other vegetation types, the wetland acreage is included in the existing vegetation type for that area. But the jurisdictional plant species will be included in the pasture vegetation type species list. Pastures also contain isolated areas of woody riparian vegetation most commonly associated with major riverine features, though these areas are not jurisdictional wetlands. Woody riparian areas are also too small to quantify in a meaningful way, so are included in the pasture vegetation type. Common planted species within the pasture vegetation type include meadow fescue (*Fescue pratensis*), smooth brome, orchard grass (*Dactylis glomerata*), western wheatgrass, timothy (*Phleum pratense*), and red clover (*Trifolium pratense*). Common native plant species include water hemlock (*Cicuta douglasii*), willow herb (*Epilobium ciliatum*), marsh buttercup (*Ranunculus cymbalaria*), water speedwell (Veronica anagallis-aquatica), creeping bentgrass (*Agrostis stolonifera*), Nebraska sedge (*Carex nebrascensis*), creeping spikerush (*Eleocharis palustris*), wiregrass (*Juncus arcticus*), rabbitfoot grass (*Polypogon monspeliensis*), weeping alkaligrass (*Puccinellia distans*), cordgrass (*Spartina gracilis*), cattail (*Typha latifolia*), Wood's rose (*Rosa woodsii*), coyote willow (*Salix exigua*), and narrowleaf cottonwood (*Populus angustifolia*). Several weeds are located in the pasture vegetation type, including musk thistle, houndstongue (*Cynoglossum officinale*), leafy spurge (*Euphorbia escula*), perennial pepperweed (*Lepidium latifolium*), scotch thistle (*Onopordum acanthium*), tumblemustard (*Sisymbrium altissimum*), and cocklebur (*Xanthium strumarium*). The pasture vegetation type is subject to livestock grazing.

Bitterbrush (BB) – The bitterbrush vegetation type covers 4 percent of the proposed pipeline alignment and is associated with the sand hills adjacent to the Yampa River. The vegetation type is located in sandy soils and is dominated by bitterbrush with scattered broom snakeweed and viscid rabbitbrush. The bitterbrush vegetation type also supports an understory herbaceous layer consisting of witchgrass (*Panicum capillare*), Indian ricegrass, sand dropseed (*Sporobolus cryptandrus*), low ragweed (*Ambrosia tomentosa*), nodding buckwheat (*Eriogonum cernum*), stickseed (*Lappula redowskii*), and dune scurfpea (*Psoralidium lanceolatum*).

Mountain brush (MB) – The mountain brush vegetation type occurs on hills in Colorado over 2 percent of the proposed pipeline corridor. The vegetation type is characterized by a canopy of various shrubs consisting of serviceberry, mountain big sagebrush, chokecherry (*Prunus* or *Padus virginiana*), Gambel oak, and mountain snowberry. An occasional Utah juniper may also be found in this vegetation type. Herbaceous vegetation includes grasses such as mountain brome (*Bromus carinatus*), Great Basin wildrye, western wheatgrass, and needle and thread. Some of the forbs encountered in this vegetation type include Louisiana wormwood, mariposa (*Calochortus gunnisonii*), Engelmann fleabane (*Erigeron engelmannii*), spurred lupine, phlox (*Phlox* spp.), and sand spurry (*Spergularia rubra*). The weeds burdock and houndstongue were noted in this vegetation type. The mountain vegetation type is subject to livestock grazing.

Agricultural lands (AG) – The agriculture vegetation type was identified on only 1 percent of the proposed pipeline corridor and occurred in only a small number of locations in Rio Blanco County, Colorado. Areas characterized by the agriculture vegetation type included both irrigated and dry farmed fields that for the most part support alfalfa (*Medicago sativa*) or fields that contain both planted and native plant species that are harvested for hay. Planted species consisted of smooth brome, orchard grass, meadow fescue, timothy, and clover. Some of the native planted species located in the agricultural vegetation type included creeping bentgrass, Nebraska sedge, and common scouring rush.

3.2 WETLANDS

Jurisdictional wetlands were identified at 30 locations along the proposed Piceance Basin Expansion Project corridor. Wetland locations are indicated on maps located in Appendix E. The wetlands along the proposed Piceance Basin Expansion Project corridor are located in proximity to streams with defined channels or in areas of concave topography, such as swales and depressions. Sources of hydrology to the wetlands located in proximity to streams with defined channels include surface flows in the channels and shallow alluvial groundwater. Wetlands located in swales and depressions without defined channels are supported by shallow alluvial groundwater, as well as ponding of local precipitation and runoff.

All but three of the wetland areas identified within or in close proximity to the proposed Piceance Basin Expansion Project corridor are classified as Palustrine persistent emergent (PEM) wetlands (Cowardin, et al. 1979). The three that are not Palustrine persistent emergent wetlands support coyote willows (*Salix exigua*) and other shrubs, which qualifies them as Palustrine broad-leaved deciduous scrub-shrub (PSS) wetlands (Cowardin, et al. 1979).

The three scrub-shrub wetlands include the riparian bands on both sides of the Yampa River (W8), the Deception Creek channel just upstream of its confluence with the Yampa River and downstream of an impoundment (W11), and a tributary to Bob Hughes Creek (W14). In

addition to coyote willow, the Yampa River riparian wetlands support numerous cottonwood (*Populus deltoides*) seedlings, indicating that natural regeneration of the riparian forest in this reach may be occurring. The understory in the wetlands along the Yampa River consists primarily of spikerush (*Eleocharis palustris*). Shrubs along Deception Creek include coyote willow and Wood's rose (*Rosa woodsii*), with an understory dominated by Nebraska sedge (*Carex nebrascensis*), rabbitfoot grass (*Polypogon monspeliensis*), and common threesquare (*Scirpus* or *Schoenoplectus pungens*). Shrubs along the tributary to Bob Hughes Creek include coyote willow and golden currant (*Ribes aureum*), with an understory dominated by wiregrass (*Juncus arcticus*) and Nebraska sedge. Flows are perennial in the Yampa River and through this reach of Deception Creek. Flows are seasonal or intermittent in the tributary to Bob Hughes Creek.

All but two of the remaining 27 wetlands support wet meadow vegetation. These wet meadow wetlands include broad meadows in Greasewood Gulch (W6), near Price Creek (W19), on the terraces above the Little Snake River (W4) and the Yampa River (W9), and on the floodplain of the White River (W28). Dominant plant species within the wetland near the Little Snake River include species tolerant of alkaline conditions, such as saltgrass (*Distichlis spicata*), sea-blite (*Suaeda nigra*), redwool or common plantain (*Plantago eriopoda* or *P. major*), and cordgrass (*Spartina gracilis*). Dominant plant species in the wet meadows in Greasewood Gulch, near Price Creek, and near the Yampa and White Rivers include Nebraska sedge, redtop (*Agrostis stolonifera*), spikerushes (*Eleocharis* spp.), reed canarygrass (*Phalaris arundinacea*), common threesquare, and others. Flows are perennial in the Little Snake, Yampa, and White Rivers, but are seasonal or intermittent within Greasewood Gulch and Price Creek.

Narrower wet meadow wetlands occur adjacent to the Willow Creek (W1 and RW1), Sand Creek (W2 and RW2), Clayton Spring (W5), Spring Creek (W7), Deception Creek (W11), Pine Tree Gulch (W12), Bob Hughes Creek (W13 and W15), and Deep Channel Creek (W20) channels, as well as along tributaries to Bob Hughes Creek (W14), Price Creek (W17), Deep Channel Creek (W21), Strawberry Creek (W22 and W23), and Hay Gulch (W29 and W30). These wetlands are often confined by topography along the bottoms of gullies. The wetlands in the tributaries to Hay Gulch are supported by shallow alluvial groundwater that is forced to the surface by bedrock outcrops. Other relatively narrow wet meadow wetlands occur in abandoned channel features on the White River floodplain (W26 and W27) and in the vicinity of small seeps discharging from abandoned drill holes (W24). Dominant plant species in wetlands located in areas with nonalkaline soils include Nebraska sedge, wiregrass, redtop, and foxtail barley (*Hordeum jubatum*). In areas with alkaline or saline soils, dominant plant species within the wet meadow wetlands include saltgrass, sea-blite, alkaligrass (*Puccinellia distans* and *P. nuttalliana* or *airoides*), and shore arrowgrass (*Triglochin maritima*). Flows within all of these drainages are seasonal or intermittent.

One marsh wetland is located within the project area in an abandoned channel feature north of the White River (W25). This wetland supports cattails (*Typha latifolia*), hardstem bulrush (*Scirpus lacustris* ssp. *acutus*), shore arrowgrass, and Olney threesquare. A playa wetland with a wet meadow fringe is located within the project area in the vicinity of Price Creek (W18). The center of the wetland area is unvegetated, but the vegetated fringe supports alkali bulrush (*Bolboschoenus maritimus* ssp. *paludosus* or *Scirpus maritimus*), Nuttall alkaligrass, oakleaf goosefoot (*Chenopodium glaucum*), foxtail barley, and wiregrass.

The locations, National Wetland Inventory classification, length of pipeline crossing, and area affected by pipeline construction and operation for each wetland identified within the project area for the Piceance Basin Expansion corridor is presented in Table 8.

Table 8. Wetland Impacts from the Proposed Piceance Basin Expansion Project

MP	Wetland Number	NWI Classification	Wetland Type	Maximum Length of Crossing within ROW (feet)	Area Affected/Construction (acres)	Area Affected/Operation (acres)
39.07	W1	PEM	Wet meadow	202*	0.26*	0.15*
41.57	W2	PEM	Wet meadow	114*	0.19*	0.12*
53.15	W3	PEM	Wet meadow	103	0.18	0.11
53.29	W4	PEM	Wet meadow	685	0.97	0.67
68.32	W5	PEM	Wet meadow	27	0.04	0.03
69.42	W6	PEM	Wet meadow	353	0.6	0.4
84.39	W7	PEM	Wet meadow	0(1)	0(1)	0(1)
87.63	W8	PSS/PEM	Scrub-shrub/Wet meadow	62	0.09	0.05
87.68	W9	PEM	Wet meadow	1171(2)	2.02(2)	1.34(2)
87.92	W10	PSS/PEM	Scrub-shrub/Wet meadow/Marsh	40	0.06	0.04
97.23	W11	PEM	Wet meadow	51	0.03	0.02
97.44	W12	PEM	Wet meadow	27	0.02	0.02
98.49	W13	PEM	Wet meadow	15	0.02	0.01
99.32	W14	PSS	Scrub-shrub	16	0.02	0.02
99.75	W15	PEM	Wet meadow	46	0.05	0.04
100.73	W16	PEM	Wet meadow	0(3)	0(3)	0(3)
106.03	W17	PEM	Wet meadow	130	0.12	0.08
106.17	W18	PEM	Wet meadow/playa	230	0.27	0.18
106.58	W19	PEM	Wet meadow	584	0.72	0.54
107.18	W20	PEM	Wet meadow	85	0.09	0.06
107.75	W21	PEM	Wet meadow	73	0.05	0.03
111.17	W22	PEM	Wet meadow	18	0.02	0.01
114.67	W23	PEM	Wet meadow	50(4)	0.07(4)	0.04(4)
116.45	W24	PEM	Wet meadow	0(5)	0(5)	0(5)
127.46	W25	PEM	Marsh	0(6)	0(6)	0(6)
127.59	W26	PEM	Wet meadow	71	0.09	0.07
127.63	W27	PEM	Wet meadow	0(7)	0(7)	0(7)
127.65	W28	PEM	Wet meadow	364(2)	0.32(2)	0.46(2)
132.95	W29	PEM	Wet meadow	15	0.02	0.01
133.71	W30	PEM	Wet meadow	6	0.01	0.004
Forested Wetlands		**PFO**	**Forest**	**0**	**0**	**0**
Scrub-shrub Wetlands		**PSS**	**Scrub-shrub**	**118**	**0.17**	**0.11**
Emergent Wetlands		**PEM**	**Wet meadow and marsh**	**4420**	**6.16**	**4.39**
All Wetlands				**4538**	**6.33**	**4.5**

Table 8. Wetland Impacts from the Proposed Piceance Basin Expansion Project						
MP	Wetland Number	NWI Classification	Wetland Type	Maximum Length of Crossing within ROW (feet)	Area Affected/Construction (acres)	Area Affected/Operation (acres)

* = wetland width and impact acreage includes channel
(1) = wetland located > or = 125' from centerline; ROW width will be adjusted to avoid wetlands
(2) = crossing may be directionally drilled, which would result in less impact to wetlands
(3) = wetland located > or = 54' from centerline; ROW width will be adjusted to avoid wetlands
(4) = wetland located in 3 separate channels; 1 channel crosses centerline, 1 is located > or = 117' from centerline, 1 is located > or = 132' from centerline
(5) = wetland located > or = 65' from centerline; ROW width will be adjusted to avoid wetlands
(6) = wetland located > or = 66' from centerline; ROW width will be adjusted to avoid wetlands
(7) = wetland located > or = 28' from centerline; ROW width will be adjusted to avoid wetlands

4.0 THREATENED AND ENDANGERED SPECIES

In Wyoming, seven species are listed b_ the U.S. Fish and Wildlife Service (FWS) (Table 9) including one endangered species, black-footed ferret; two threatened species, bald eagle and Ute ladies'-tresses; one candidate, yellow-billed cuckoo, and three sensitive species, pygmy rabbit, sage grouse and mountain plover. The endangered Colorado River fishes would be implicated if any water depletions of streams draining into the Little Snake and Green Rivers occurred in Wyoming. However, WIC does not propose pumping water from any stream in Wyoming.

Table 9. Wyoming Threatened, Endangered, Candidate and Sensitive Species along the Piceance Basin Expansion, 2004 E-endangered; T-threatened; C-candidate; S-sensitive

Species	Status	Habitat
Bald eagle *Haliaeetus leucocephalus*	T	Riparian Woodland, Adjacent Habitat
Black-footed ferret *Mustela nigripes*	E	Prairie dog towns
Ute ladies'-tresses *Spiranthes diluvialis*	T	Wet meadows, springs, lakes; perennial streams
Colorado River Fish	E	Formal consultation if water depleted
Yellow-billed cuckoo *Coccyzus americanus*	C	Riparian Wetlands
Pygmy rabbit *Brachylagus idahoensis*	S	Big sage steppe
Sage grouse *Centrocercus urophasianus*	S	Big sage steppe
Mountain plover ***Charadrius montanus***	S	Sparse shortgrass/badlands

In Colorado, 20 species are listed by the FWS (Table 10), including four endangered species: Colorado pikeminnow, humpback chub, bonytail chub and razorback sucker; four threatened species, bald eagle, Ute ladies'-tresses, Dudley Bluffs bladderpod, and Piceance twinpod; two sensitive species, Debris milkvetch and Piceance bladderpod; and ten species of concerned conservation, including the mountain plover, sage grouse and the ferruginous hawk.

Table 10. Colorado Threatened, Endangered, Candidate and Sensitive Species along the Piceance Basin Expansion, 2004 E-endangered; T-threatened; S-sensitive; CC-concerned conservation		
Species	**Status**	**Habitat**
Bald Eagle *Haliaeetus leucocephalus*	T	Riparian woodland
Colorado Pikeminnow *Ptychocheilus lucius*	E	Yampa River
Humpback chub *Gila cypha*	E	Yampa River
Bonytail chub *Gila elegans*	E	Yampa River
Razorback sucker *Xyrauchon texanus*	E	Yampa River
Ute ladies'-tresses *Spiranthes diluvialis*	T	Wet meadow, spring, ponds, perennial streams
Dudley Bluffs bladderpod *Lesquerella congesta*	T	White Tongue soils, Parachute Creek Member, Green River Formation
Piceance twinpod *Physaria obcordata*	T	White Tongue soils, Parachute Creek Member, Green River Formation
Debris milkvetch *Astragalus detritalis*	S	Pinyon-juniper, mixed desert shrub
Piceance bladderpod *Lesquerella parviflora*	S	Shale outcrops, Green River Formation
Black-throated gray warbler *Dendroica nigrencens*	CC	Juniper woodlands
Brewer's sparrow *Spizella breweri*	CC	Sagebrush foothills and medium-height sagebrush in basins. Also, mountain mahogany hills
Loggerhead shrike *Lanius ludovicianus*	CC	Open country with scattered trees and shrubs
Long-billed curlew *Numenius americanus*	CC	Meadows, pastures, shorelines and marshes
Pinyon jay *Gymnorhinus cyanocephalus*	CC	Pinyon-juniper woodland
Sage sparrow *Amphispiza belli*	CC	Medium to tall sagebrush shrubland
Virginia's warbler *Vermivora virginiae*	CC	Riparian woodlands and brushy slope
Mountain plover *Charadrius montanus*	CC	Sparse shortgrass/badlands
Sage grouse *Centrocercus urophasianus*	CC	Big sage steppe
Ferruginous hawk ***Buteo regalis***	CC	Open grasslands and shrubland

4.1 Mammals

4.1.1 Black-footed Ferret

The black-footed ferret is an endangered species in Wyoming and Colorado. Black-footed ferrets may be affected if prairie dog towns are impacted. In Wyoming, black-footed ferret surveys are no longer recommended in black-tailed prairie dog towns or in white-tailed prairie dog towns except those noted in a February 2, 2004 letter from the Fish and Wildlife Service (USFWS 2004). The white tailed dog towns found in Townships 13N to 20N, Range 94W have not been cleared and may have to be searched. Some prairie dog towns in eastern Colorado have been block cleared and surveys for ferrets are no longer recommended. No block clearances of white-tailed prairie dogs are in place in western Colorado. However, FWS has designated dog towns in Moffat County, Colorado and Sweetwater County, Wyoming as experimental populations. These populations are considered low probability of ferret occurrence and are designated as potential ferret introduction sites. These areas, as mentioned above, do not require ferret searches (Robert Leachman, FWS, Grand Junction, CO, 970-243-2778, personal communication, 11-23-04). FWS encourages the project to protect all prairie dog towns for their value to the prairie ecosystem and the myriad of species that rely on them. The towns located along the Piceance Basin Lateral are listed in Table 11.

Table 11. White-tailed Prairie Dog Towns Located on the Piceance Basin Expansion Pipeline in Wyoming and Colorado

County	Milepost	Status	Distance from Centerline, ft.	Length on Centerline, ft	Acreage Disturbed
WYOMING					
Sweetwater	0.0	Active	On	820	1.6
Sweetwater	0-24.0	Scattered	-	-	
Sweetwater	13.4	Active	On	1400	2.7
Sweetwater	21.3	Active	On	1200	2.3
Sweetwater	29.8-30.1	Active	On	1400	2.7
COLORADO					
Moffat	54.0	Active	On	840	1.6
Moffat	83.0	Active	2500 W	-	
Moffat	93.5-94.1	Active	On	3800	7.4
Rio Blanco	111.3	Active	On	500	2.3

Impacts

In Wyoming, if white-tailed prairie dog towns or complexes greater than 200 acres will be disturbed, surveys for the endangered black-footed ferret may be recommended by FWS in order to determine if the action would result in an adverse effect to the species. Surveys may be recommended if a portion of the white-tailed prairie dog town or complex, as identified in the recent FWS letter (USFWS 2004), will be disturbed. According to the Black-Footed Ferret Survey Guidelines (USFWS 1989), a prairie dog complex consists of two or more neighboring prairie dog towns less than 7 km (4.3 miles) from each other. A field check indicates that prairie dog towns would be affected based on distance the pipeline traverses the town (Table 11). FWS will be contacted after a spring survey confirms if the towns are complexes exceeding 200 acres. Based on BLM Rawlins data, only one town (MP 13.45) that is crossed appears to qualify for the FWS criterion.

Mitigation

Once a spring survey of the prairie dog towns is complete (no later than June 15, 2005), a ferret survey will be conducted in July 2005, if the FWS deems it necessary. Any time trenching occurs in a prairie dog town, an EI or biologist will accompany the trencher. Should a ferret be unearthed, all construction will cease in the dog town, FWS will be notified, and construction will not resume until FWS gives the signal to proceed.

4.1.2 Pygmy Rabbit

The pygmy rabbit is a FWS-designated sensitive species. FWS has received a petition (April 21, 2003), to list the pygmy rabbit under the Endangered Species Act. This smallest of the Leporidae family occurs in portions of many western states including southwestern Wyoming, where they occur in a few isolated populations in Lincoln, Uinta, and Sweetwater Counties (Clark and Stromberg 1987). Peter Kung, wildlife biologist working for private industry in Wyoming (Kung, personal communication, 2004), has located new populations near Granger, Wyoming in the same counties and reported these locations to the BLM. Pygmy rabbits are sage-brush obligate species, primarily found in dense western big sagebrush communities preferably where at least two other species of sagebrush and forbs occur as well. None of the habitat appropriate for the pygmy rabbit appears to occur along the Piceance Basin Expansion. Mr. Kung will inspect the route during winter or spring 2005 for suitable habitat. Should appropriate habitat be found, impacts will be determined and mitigation will be worked out with the direction and guidance of the FWS.

4.1.3 White-tailed Prairie Dog

The white-tailed prairie dog is a BLM sensitive species in Wyoming. The dogs are spread throughout Sweetwater County, Wyoming and Moffat County, Colorado and in the northern half of Rio Blanco County, Colorado. FWS has removed the species from its candidate list but is concerned about its existence due to its importance to ferrets as well as a variety of other species. Please refer to the black-footed ferret above for a detailed rationale for searching the listed dog towns. Four towns occurred on the right-of-way in Sweetwater County, two in Moffat County and one in Rio Blanco County (Table 11).

Impacts

Direct impacts to the white-tailed prairie dog could occur during clearing, if heavy equipment collapses burrows while moving along the right-of-way, or if trenching destroys burrows. Once the pipeline is completed and reclaimed, the only direct impact would be a pipeline breach at a dog town. Operational monitoring is usually done by aircraft, so no vehicles would be expected at a town. Required periodic operational surveys will be conducted on foot in potential habitat.

Indirect impacts to these mammals would be mainly positive. On the negative side, displacement of rodents during construction may increase predation success on the prairie dogs. Once operational, the pipeline corridor would provide loose soil for burrows plus forbs, grasses and seeds for rodent forage, potentially increasing and definitely maintaining a food resource. The loose soil on the UBL's trench is the reason miles of scattered prairie dogs were found in this

area of Wyoming (Table 11). Reclamation will reseed with BLM and NRCS seed mixes appropriate to the area's soil and range conditions.

Cumulative impacts to the prairie dogs would be due to increased human recreational use of the pipeline's right-of-way corridor or to similar or other use of the corridor by linear projects, such as fiber optic cables and natural gas or liquid pipelines. Human recreation would be limited by individual landowners. Additional construction in the right-of-way would require landowner consent. On BLM land, access to the corridor would be more difficult to control. WIC will implement efforts to limit access to the right of way by recreational users if requested by BLM.

Mitigation

Construction through the prairie dog towns will require special construction techniques. The active towns do not have a high burrow density, and distance through the towns is moderate with the exception of 3800 feet through a town in Moffat County, Colorado (Table 11). Any town that is active at the time of construction will have its boundaries clearly marked and signed by the Environmental Inspectors. The right-of-way width will not be reduced to 75 feet but stay at 85 feet through all dog towns. The reason for this change from a 75-foot right-of-way is based on recent construction on the Cheyenne Plains pipeline through eastern Colorado and southern Kansas. The 75-foot right-of-way negatively affected pipeline construction and had no effect on prairie dog behavior and distribution. No activity will take place within or near (300 ft) the town's boundaries other than that stated below.

The pipeline's impact is linear and would not disturb more than 6.5 acres of the largest town, located in Moffat County (Table 11). Each phase of construction, clearing, pipe-stinging, bending, trenching, lowering-in, backfilling, and clean up will take place in the usual course of construction; however, no equipment and no personal vehicles will be left overnight within 300 feet of the town and traffic through the town will be limited to a one time pass through. Prairie dogs will be displaced and disrupted for 2 weeks maximum during construction, due to an open ditch. Some individual prairie dogs may be killed during construction, but this impact would not be significant. Since most construction will take place after the reproductive season, most prairie dogs will be mobile and able to avoid the ditching machine as well as construction traffic. Once completed, the revegetated pipeline will provide additional forage for the prairie dogs as well as unconsolidated soils in which to burrow. Since the seven towns affected by the pipeline are estimated at small to medium in size (the towns will be resurveyed in spring 2005), the effect on the species will be minimal. The consequence of the pipeline's construction will be short-term disruption (two weeks maximum) of the prairie dogs town; and a long-term benefit (3 to 7 years) of grasses and forbs, and loose soil for the prairie dogs in the reclaimed right-of-way.

The expected status of the white-tailed prairie dog will not change due to the pipeline's construction and operation. The proposed action is not likely to have an adverse impact on the white-tailed prairie dog.

4.2 Birds

4.2.1 Bald Eagle

The bald eagle is a federal and state listed threatened species. On the Piceance Basin Expansion, it is a permanent resident at the Little Snake and White River crossings and a winter resident at the Yampa River. Table 12 shows roosts and active nests in the project area. While habitat loss still remains a threat to the bald eagle's full recovery, most experts agree that its recovery to date is encouraging. Bald eagles may live up to 30 years in the wild. Adult eagles establish life-long pair bonds and build huge nests in the tops of large trees near rivers, lakes, marshes, or other wetland areas. Bald eagles may use the same nest in consecutive years. Although bald eagles may range over great distances, they usually return to nest within 100 miles of where they were fledged.

Table 12. Bald Eagle Roosts and Active Nests in Wyoming and Colorado along the Piceance Basin Expansion, 2004

County	Habitat	Distance From ROW (Feet)	Milepost
COLORADO			
Moffat	Active nest	1500	53.1
Moffat	Roost	2018	87.0
Rio Blanco	Roost	1443	128.5
Rio Blanco	Roost	862	130.5
Rio Blanco	Roost	3548	130.7
Rio Blanco	Active nest	1350	128.5

Impacts

In order to reduce potential adverse effects to the bald eagle, a disturbance-free buffer zone of 0.5 mile should be maintained around eagle nests and 0.25 miles at winter roost sites (CDOW 2004). Activity within 0.5 mile of an eagle nest or 0.25 mile of a roost may disturb the eagles and result in Atake.@ If a disturbance-free buffer zone of 0.5 or 0.25-mile is not practicable, then the activity should be conducted outside of February 15 - August 15 to protect nesting birds and November 1 through April 15 to protect roosting birds. No nesting birds will be impacted due to construction schedule; however, roosting eagles at the Little Snake, Yampa, and White Rivers could be affected.

Mitigation

Construction will cross all three rivers where bald eagles are roosting, since timing of construction will be in September and as late as January 2006. This will avoid nesting and be after young have fledged. It will coincide with winter roost use. When construction is within 0.5-mile of one of the rivers, the roosts will be monitored on a daily basis regarding number and behavior. With interaction with the FWS and the CDOW, construction may be slowed or cease for some determined period. Using this approach, the proposed action is not likely to have an adverse impact on the bald eagle, dependent on FWS and CDOW concurrence.

4.2.2 Yellow-billed Cuckoo

The yellow-billed cuckoo is a candidate for federal listing as threatened or endangered and may occur west of the Continental Divide in Wyoming. Federal agencies have policies to protect candidate species from further population declines. The cuckoo is restricted to dense riparian woodlands for nesting, and no such habitat occurs on the Piceance Basin Expansion nor have any cuckoos been recorded in Sweetwater County (Dorn and Dorn 1999). Therefore, no impacts to Yellow-billed cuckoo are expected to occur.

4.2.3 Mountain Plover

The mountain plover was proposed for FWS listing in 2003 but dropped from consideration in 2004. It is a BLM sensitive species in Wyoming and of Concerned Conservation in Colorado. One nesting plover was seen during the 2004 biological survey in Wyoming, the only area where appropriate habitat was located along the pipeline right-of-way (Table 13). In Wyoming (Dorn and Dorn 1999) and eastern Colorado (Andrews and Righter 1992), mountain plover are summer residents. Short grass prairie is preferred habitat as is fallow cropland. Plovers usually arrive in the project area in late March and April and begin nesting in late April/early May. By mid-June the eggs have hatched and the female will usually lead the young away from the nest, foraging and roosting in the nest's vicinity. However, during the drought in 2002, nesting in Colorado did not begin until June and continued into July. Fall migration begins in the late summer/early fall

Table 13. Mountain Plover Locations along the Piceance Basin Expansion in Wyoming and Colorado, 2004

County	Milepost	Habitat
WYOMING		
Sweetwater	8.3-15.8	Adequate
Sweetwater	15.1	Nest w/ 3 eggs
Sweetwater	18.8-21.0	Adequate

Impacts

Based on the schedule of construction, there will be no direct impacts to mountain plovers. By the time construction reaches plover habitat in Wyoming, the birds will have migrated to their wintering grounds. Indirect impacts will be positive due to clearing more ground of shrubs and possibly increasing food along the right-of-way. Cumulatively, the more ground cleared by pipelines or such that lack permanent facilities, the more potential habitat for the plover.

Mitigation

Mountain plovers and their habitat were found along the pipeline right-of-way in Wyoming only. Since construction will not have any effect on plover numbers or distribution because of schedule, no surveys for the species will be conducted prior to construction.

The expected status of the mountain plover will not change due to the pipeline's construction and operation.

4.2.4 Sage Grouse

The sage grouse is a sensitive species for the FWS and the states of Wyoming and Colorado. The FWS has received several petitions to list the greater sage-grouse under the Endangered Species Act. The causes for the greater sage-grouse rangewide decline are not completely understood and may be influenced by local conditions. However, habitat loss and degradation, as well as loss of population connectivity are important factors (Braun 1998, Wisdom et al. 2002). Greater sage-grouse are dependent on sagebrush habitats year-round. Therefore, any activities that result in loss or degradation of sagebrush habitats that are important to this species should be closely evaluated for their impacts to sage grouse. If important breeding habitat (leks, nesting or brood rearing habitat) is present in the project area, FWS recommends no project-related disturbance between March 1 and June 30, annually. Minimization of disturbance during lek activity, nesting, and brood rearing is critical to sage grouse survival. BLM suggests avoidance of leks by two miles; CDOW suggests avoidance of 0.25 miles around a lek and the same two mile as BLMs. These avoidance areas are depicted in Maps 1-18, Appendix E. The proposed route passes near three leks in Wyoming and 21 leks in Colorado (Table 14). The length of centerline within each lek avoidance area is misleading since many of the leks overlap.

Table 14. Sage Grouse Leks Located on the Piceance Basin Expansion in Colorado and Wyoming, 2004

County	Milepost	Map Notation	Status	Distance from Centerline, ft	Length on Centerline, ft. within a 2 mile buffer	Active/Inactive Unknown
WYOMING						
Sweetwater	26.7	L1	Lek, Historic*	2600E	19374	Unknown
Sweetwater	30.8	L2	Lek, Historic*	1600E	21061	Unknown
Sweetwater	31.3	L3	Lek, Historic*	500E	21235	Unknown
COLORADO						
Moffat	56.9	L3A	Lek, CDOW	0	21543	Active
Moffat	58.2	L3B	Lek, CDOW	4224W	19850	Active
Moffat	59.6	L4	Lek, CDOW	4800E	18921	Active
Moffat	65.7	L6A	Lek, CDOW	4150E	19236	Active
Moffat	66.2	L6B	Lek, CDOW	2250W	22281	Active
Moffat	67.2	L6C	Lek, CDOW	3528E	19466	Inactive
Moffat	67.2	L6D	Lek, CDOW	4242E	17868	Active
Moffat	74	L7	Lek, Bio-92**	2400E	20982	Unknown
Moffat	75.4	L8	Lek, CDOW	1600E	21109	Active
Moffat	77.2	L9	Lek, CDOW	100E	21458	Inactive
Moffat	77.0		Individuals	On		-
Moffat	77.8	L10	Lek, Bio-92**	1600W	21107	Unknown
Moffat	78.4	L11	Lek, Bio-92**	300W	21467	Unknown
Moffat	82.5	L12	Lek, CDOW	2700W	20260	Unknown
Moffat	93.0	L12A	Lek, CDOW	3576E	19975	Active
Moffat	94.9	L13	Lek, CDOW	500	21090	Inactive
Moffat	94.9	L13A	Lek, CDOW	2913W	20427	Inactive
Moffat	95.4	L13B	Lek, CDOW	4715W	19089	Active

Table 14. Sage Grouse Leks Located on the Piceance Basin Expansion in Colorado and Wyoming, 2004						
County	Milepost	Map Notation	Status	Distance from Centerline, ft	Length on Centerline, ft. within a 2 mile buffer	Active/Inactive Unknown
Moffat	97.6	L14	Lek, CDOW	4800W	18728	Active
Moffat	98.0	L15	Lek, Bio-92**	4200W	19217	Unknown
Moffat	107.0		14 Individuals	300E		-
Moffat	107.5		12 Individuals	800E	-	-
Rio Blanco	141.2	L16	Lek, BLM	7950E	10417	Unknown
Rio Blanco	141.7	L17A	Lek	6148E	9249	Unknown
* BLM **Bio-92-Lek from UBL survey						

Impacts

Information suggests that greater sage-grouse populations are negatively affected by construction activities, especially those that degrade important sagebrush habitat, even when mitigative measures are implemented (Braun 1998, Lyon 2000). Greater sage-grouse populations can repopulate areas developed for resource extraction after habitat reclamation for the species (Braun 1987). However, there is no evidence that populations attain their previous levels and reestablishment of sage grouse in a reclaimed area may take 20-30 years, or longer (Braun 1998). Therefore, this project should be carefully evaluated for long-term and cumulative effects on the greater sage-grouse, since reclamation may not restore populations to pre-activity levels. The project should ensure this activity does not exacerbate greater sage-grouse declines on either a local or range-wide level. Sage grouse habitat will be treated according to direction from CDOW.

Mitigation

In a review of sage grouse distribution in Colorado with Brad Petch (Habitat Biologist, CDOW, Meeker, CO, 970-878-6063) in Craig, Colorado, on December 10, 2004, the following criteria were acceptable to WIC in terms of mitigation. In April 2005, the leks listed in Table 14 will be surveyed for activity. Presently, 12 of the 21 leks in the above table are considered active. The right-of-way passes through the 0.25-mile radius immediately around five leks, one in Wyoming, four in Colorado. The Wyoming lek is historic, with no recent activity. In Colorado, lek L3 (Map 4, Appendix E) is a historic site with no known activity. Lek 3A (Map 7, Appendix E) is almost centered on the UBL right-of-way and may be an active site with an average of 50 birds using the area in 2002 and 2003. It is possible that lek 3B is the active lek; CDOW will make that determination. Leks 9, 11 and 13 (Maps 10, 12, Appendix E) are all inactive.

Since construction will not affect nesting or brooding, it may affect winter distribution of the grouse for a short period. This disruption should not constitute a significant impact. In terms of reclamation, sagebrush seed will be required to be spread on the right-of-way prior to drill seeding. The seed should be locally collected if possible; otherwise *Artemisia wyomingensis* should be used. Since the distance through the 2-mile radius around the leks is extensive, a patch work of sagebrush seeding then no sagebrush seed is suggested. These mileposts will be included

in the Reclamation Plan that will be updated to include the sage grouse information by January 31, 2005. In addition to the sagebrush seed, forb seeds need to be an integral part of the mix, namely, small burnet, Ryland alfalfa, Lewis flax, lupine common to Moffat County, and Cicer milkvetch. The availability of these seeds will be determined prior to mid-January and included in the Reclamation Plan.

Should lek L3A prove to be the active lek, rather than L3B, the right-of-way width will be reduced to 50 feet for a quarter-mile.

4.2.5 Ferruginous Hawk

The ferruginous hawk, a BLM sensitive species in Wyoming and a species of Concerned Conservation in Colorado, is a summer resident in the project area (Dorn and Dorn 1999; Andrews and Righter 1992). No active ferruginous hawk nests were found in Colorado or Wyoming. Usually ferruginous hawks initiate nesting in April and young are fledged by July 1. This schedule is known to extend into July during some years.

Impacts

Since no ferruginous hawks were found along the route, impacts are unlikely during construction. Based on fall construction, no birds will be on nest; hence, no direct impacts would occur. Indirectly, more prey feeding on the reclaimed right-of-way will increase food for the hawks. Cumulative impacts appear to be minor since no nests are damaged nor does the route make the nests more accessible.

Mitigation

The ferruginous hawk will be searched for in their appropriate habitat prior to construction. Construction will occur when all birds are dispersed or have migrated south. Any sightings will be noted and if possible any nesting sites avoided during construction.

Should any migrating or resident species that is federally listed occur on any part of the pipeline during construction, work will cease immediately at the specific location until authorities are notified and permission to proceed is issued or the bird has flown away.

4.2.6 Long-billed Curlew

The curlew, a sensitive species in Wyoming and a species of Concerned Conservation in Colorado, is a possible but unconfirmed summer resident in Sweetwater County (Dorn and Dorn 1999), a non-breeding summer resident in northwestern Moffat County, and a questionable summer resident in Rio Blanco County. No curlews were seen during biological surveys of the project area in 2004. The curlew is known in grasslands which are scattered and small acreage along the proposed route.

Impacts

Direct impacts to the curlew would be minimal since construction would occur in the fall, after or during the bird's migration. Indirect impacts would be grassier habitat for foraging along the

pipeline corridor following reclamation. Cumulative impacts would be providing access to areas along the corridor that were previously inaccessible.

Mitigation

The long-billed curlew will be searched for in their appropriate habitat prior to construction. Construction will occur when all birds are dispersed or have migrated south. Any sightings will be noted and if possible any nesting sites avoided during construction.

Should any migrating or resident species that is federally listed occur on any part of the pipeline during construction, work will cease immediately at the specific location until authorities are notified and permission to proceed is issued or the bird has flown away.

4.2.7 Loggerhead Shrike

Loggerhead shrikes, a sensitive species in Wyoming and a species of Concerned Conservation in Colorado, are a possible but unconfirmed summer resident in Sweetwater County (Dorn and Dorn 1999) and a summer resident along the Yampa and White Rivers in Moffat and Rio Blanco Counties, respectively (Andrews and Righter 1992). Usually shrikes are on their nests from late April to mid-May; nests are usually located in large shrubs or isolated small trees. No shrikes were seen during biological surveys of the project area in 2004.

Impacts

Based on fall construction, no birds will be on nest and most will have moved south to warmer climes. Indirectly shrubs, mainly greasewood used for nests or storing prey, would be lost during clearing. Replacing these nest sites would take years. At present there are numerous nest sites, greasewood and sagebrush, available. Cumulatively, continued loss of nesting sites due to continued construction could prove to be significant.

Mitigation

The loggerhead shrike will be searched for in their appropriate habitat prior to construction. Construction will occur when all birds are dispersed or have migrated south. Any sightings will be noted and if possible any nesting sites avoided during construction.

Should any migrating or resident species that is federally listed occur on any part of the pipeline during construction, work will cease immediately at the specific location until authorities are notified and permission to proceed is issued or the bird has flown away.

4.2.8 Pinyon Jay

The pinyon jay is a Species of Conservation Concern in Colorado. It almost exclusively lives in pinyon-juniper woodlands and is considered common to abundant in Moffat and Rio Blanco Counties (Andrews and Righter 1992). No birds were seen during biological surveys 2004. This may be due to the jay's wandering habits after the young have fledged or to drought conditions in the project area, as this bird's abundance is known to be drought regulated (Grant 1986).

Impacts

The pinyon jays are permanent residents and will be present in pinyon-juniper woodland throughout construction. The birds forage through the woodlands in flocks. Direct impacts would be negligible due to the bird's mobility. Indirectly, some potential nesting trees could be lost but increased foraging area in reclaimed areas will be available. Cumulatively, loss of nesting site does not appear to be significant due to the jay's wandering habits.

Mitigation

The pinyon jay will be searched for in their appropriate habitat prior to construction. Construction will occur when all birds are dispersed. Any sightings will be noted and if possible any nesting sites avoided during construction.

Should any migrating or resident species that is federally listed occur on any part of the pipeline during construction, work will cease immediately at the specific location until authorities are notified and permission to proceed is issued or the bird has flown away.

4.2.9 Virginia's Warbler

The Virginia's warbler, a sensitive species in Wyoming and a species of Conservation Concern in Colorado, is a possible but unconfirmed summer resident in Sweetwater County (Dorn and Dorn 1999); known locations in Sweetwater County are not on the proposed route. In Colorado the mountain shrub vegetation in Moffat County and the pinyon-juniper woodland in Rio Blanco County plus the Yampa and White Rivers are potential habitat (Andrews and Righter 1992); however, in 11 years of monitoring on the lower White River, the warbler nested in riparian woodlands during two years and was not seen in juniper woodland (Grant 1986). Habitat for this warbler, though present in small patches, appears to be inadequate to support nesting pairs. No warblers were seen during biological surveys of the project area in 2004.

Impacts

Direct impacts to this warbler would be minimal due to construction schedule. Indirect impacts would be loss of nesting sites and shrubs for foraging. Since habitat is minimal, indirect impacts are also minimal. No cumulative impacts would occur from construction and operation of the proposed pipeline.

Mitigation

The Virginia's warbler will be searched for in their appropriate habitat prior to construction. Construction will occur when all birds are dispersed or have migrated south. Any sightings will be noted and if possible any nesting sites avoided during construction.

Should any migrating or resident species that is federally listed occur on any part of the pipeline during construction, work will cease immediately at the specific location until authorities are notified and permission to proceed is issued or the bird has flown away.

4.2.10 Black-throated Gray Warbler

The black-throated gray warbler, a sensitive species in Wyoming and a Species of Concerned Conservation in Colorado, is a possible but unconfirmed summer resident in juniper woodlands in Sweetwater County (Dorn and Dorn 1999) and Moffat and Rio Blanco Counties (Andrews and Righter 1992). No warblers were seen during biological surveys of the project area in 2004, although appropriate habitat is present.

Impacts

Based on late summer/fall construction, no birds will be on nest and most will have moved south to warmer climes. Indirectly trees, mainly junipers used for nests, would be lost during clearing. Replacing these nest sites would take years. At present there are numerous nest sites, juniper trees, available. Cumulatively, continued loss of nesting sites due to continued construction could prove to be significant.

Mitigation

The black-throated gray warbler will be searched for in their appropriate habitat prior to construction. Construction will occur when all birds are dispersed or have migrated south. Any sightings will be noted and if possible any nesting sites avoided during construction.

Should any migrating or resident species that is federally listed occur on any part of the pipeline during construction, work will cease immediately at the specific location until authorities are notified and permission to proceed is issued or the bird has flown away.

4.2.11 Sage Sparrow

The sage sparrow, a sensitive species in Wyoming and a Species of Conservation Concern in Colorado, is an uncommon summer resident in Sweetwater County (Dorn and Dorn 1999) and local summer resident in western Colorado (Andrews and Righter 1992). No sparrows were seen during biological surveys of the project area in 2004, although habitat was present and the species is common in similar habitat along the White River in nearby Utah (Grant 1986).

Impacts

Based on late summer/fall construction, no birds will be on nest and most will have moved south to warmer climes. Indirectly shrubs, mainly sagebrush and some greasewood used for nests, would be lost during clearing. Replacing the greasewood nest sites would take years; sagebrush will begin growing in the right-of-way within a year of construction. At present there are numerous nest sites, greasewood and sagebrush, available. Cumulatively, continued loss of nesting sites due to continued construction could prove to be significant.

Mitigation

The sage sparrow will be searched for in their appropriate habitat prior to construction. Construction will occur when all birds are dispersed or have migrated south. Any sightings will be noted and if possible any nesting sites avoided during construction.

Should any migrating or resident species that is federally listed occur on any part of the pipeline during construction, work will cease immediately at the specific location until authorities are notified and permission to proceed is issued or the bird has flown away.

4.2.12 Brewer's Sparrow

The Brewer's sparrow, a sensitive species in Wyoming and a Species of Conservation Concern, is a common summer resident in Sweetwater County (Dorn and Dorn 1999) and in Moffat and Rio Blanco Counties (Andrews and Righter 1992). No sparrows were seen during biological surveys, although suitable habitat was present. This may be due to drought conditions in the project area. In similar habitat in Utah, this sparrow went from abundant to occasional due to drought; it recovered to an uncommon abundance once the drought ended (Grant 1986).

Impacts

Based on late summer/fall construction, no birds will be on nest and most will have moved south to warmer climes. Indirectly shrubs, mainly sagebrush and some greasewood used for nests, would be lost during clearing. Replacing the greasewood nest sites would take years; sagebrush will begin growing in the right-of-way within a year of construction. At present there are numerous nest sites, greasewood and sagebrush, available. Cumulatively, continued loss of nesting sites due to continued construction could prove to be significant.

Mitigation

The Brewer's sparrow will be searched for in their appropriate habitat prior to construction. Construction will occur when all birds are dispersed or have migrated south. Any sightings will be noted and if possible any nesting sites avoided during construction.

Should any migrating or resident species that is federally listed occur on any part of the pipeline during construction, work will cease immediately at the specific location until authorities are notified and permission to proceed is issued or the bird has flown away.

4.3 FISHES

4.3.1 Colorado Pikeminnow

The Colorado pikeminnow is an endangered species in the Upper Colorado River Basin. Regarding the streams the proposed pipeline crosses (based on a report for the Uinta Basin Lateral by R. Valdez), at the Little Snake River the only record of pikeminnow was at the river's confluence with the Yampa River, far distant from the proposed crossing (Valdez 1991). The FWS does not include the Little Snake as part of this fish's current distribution nor is this river included in its recovery goals. At the Yampa River, the pikeminnow is found from Craig, Colorado west to the confluence with the Green River in Utah. At the White River, the pikeminnow is found below the Taylor Draw Dam, just east of Rangely, Colorado. At the time of UBL construction the White crossing was in the warmwater section of the river, near the Piceance Creek confluence. Presently the crossing is in the coldwater reach of the White and apparently above the 150 mile recovery area.

Impacts

To protect the endangered fishes at the Yampa and White Rivers, the plan is to directionally drill the crossing. However, should the drill fail, an alternative plan is to open cut these rivers. Potential impacts to the pikeminnow include sedimentation of streams, loss and disruption of habitat, and introduction of toxic substances into waterbodies. These would be reduced to acceptable levels or eliminated through implementation of best management practices as outlined in WIC's Wetland and Waterbody Construction and Mitigation Procedures, based on FERC's procedures (Appendix C), the Spill Prevention Plan, (Appendix B), and erosion control and directionally drilling the stream crossings on the Yampa and the White (Drawings in Appendix A; Plans 4 and 5 and Procedure 7, Appendix B).

The open cut would add sediment to the rivers as well as damaging the river's banks. Since there are only small wetlands at these crossings and neither is in a backwater, impacts to young fishes will be reduced. Detailed drawings and plans for both drilling and open cutting all the rivers are located in Appendix A, Alignment Sheets, DWG 233A-22A-1, 233A-37A-1, AND 233A-53A-1 for the Little Snake, Yampa and White Rivers, respectively. Additional impacts and mitigation may be forthcoming from the FWS in their Biological Opinion.

Mitigation

WIC's Wetland and Waterbody Construction and Mitigation Procedures, (Appendix C) will be adopted in full for each stream channel crossing, unless other crossing procedures are approved by the appropriate agencies, including FERC. To protect aquatic resources in the project area, the

following guidelines would be used at all open-trench crossings, specifically the Little Snake River and Dry Fork Piceance Creek, possibly at the Yampa and White Rivers:

- Construction will use the open-trench method and will complete each crossing within 12 hours on all perennial and intermittent streams.

- To mitigate impacts at selected perennial stream crossings (Little Snake [MP 53.1], Dry Fork Piceance Creek [MP 135.0]), a mat of clean gravel (1 to 3 inches in diameter) over flume or mats over flume will be placed at the upstream end of the riffle being crossed (Procedures 1, 2 and 3, Appendix B). The addition of this gravel will help replace gravel disturbed by construction, allowing a quicker recovery of macro-invertebrate production, and could improve spawning habitat. A culvert/gravel (or culvert/mats combination) mat will be placed in all streams during construction. Should construction exceed 12 hours, flumes for the equipment bridges will be extended across the trench to prevent further sediment release downstream. In order to accommodate construction equipment crossing the Little Snake River (MP 53.1), a gravel/ flume arrangement will be placed on each bank to support a railroad car that will span the river (Procedure 4, Appendix B).

- Where perennial or intermittent streams are trenched, steep stream banks will be flattened as much as possible and restabilized at the toe with large angular rock (greater than 2 feet in one dimension). Streams that have gradual banks will be seeded with native grasses and mulched or protected by a jute blanket (Plan 8, Appendix B). Any woody vegetation removed during the stream installation will be spread on the banks to help protect new vegetation from livestock and wildlife.

- Riparian canopy or stabilizing vegetation will not be removed if possible. Crushing or shearing streamside woody vegetation is preferable to complete removal. Any vegetation removed in conjunction with stream crossings will be reestablished immediately following the completion of the crossing.

- Riparian areas and floodplains will not be used as staging or refueling areas. All chemicals, solvents, and fuels will be kept at least 150 feet from streams and riparian areas.

- Any section of pipeline that parallels drainages will be located outside the 100-year floodplain. Pipeline crossings of riparian areas and streams will be at right angles.

- Right-of-way widths will be minimized where the pipeline crosses riparian areas and streams.

For the two rivers that will be directionally drilled, a bridge for construction equipment will be built prior to river crossing construction for stringing trucks, dozers, graders, track hoes and trenching machines. The bridge will use clean gravel and flumes along each bank to support a railroad car. At the Yampa (MP 87.6) an additional gravel support may be needed in the middle of the stream.

Based on Richard Valdez's original mitigation for the UBL (Valdez 1991), construction precautions taken to protect the federally protected species (Colorado pikeminnow, humpback chub, razorback sucker) will also protect the other native species and games species.

These recommendations are based on the assumption that the pipeline construction at the Yampa and White Rivers will be an open cut and buried. WIC will directionally drill the Yampa and White river crossings. However, for analysis of potential impacts to fisheries, a worst-case scenario (i.e., an open cut at these crossings) was analyzed. Final determination of the viability for drilling the substrata of these rivers is positive, but should a drill fail, the alternate methodology will be to conduct an open cut installation. Accordingly, construction time windows and operating procedures are identified to minimize or avoid jeopardy to the species and/or destruction of their habitats.

The most sensitive time of the year for endangered fish species is from May 15 to September 15, which is a time of year for spawning-related activities and rearing of young. Spawning migrations by Colorado squawfish in the Yampa River ranged from May 27 to June 30 in 1981, 1983 and 1988 (Tyus 1990). Spawning activity ranged from June 20 to August 18 during 5 years (1981, 1983, 1984, 1985, and 1988). Migrations of Colorado squawfish are also documented in the White River (Tyus 1987) at approximately the same time. Only one Colorado pikeminnow was reported in 1991 in the Little Snake River in the vicinity of Baggs, Wyoming (Personal communication with W.L. Minckley). Hatching dates for Colorado pikeminnow in the Yampa River ranged from June 11 to August 6 for the years 1981-1988 (Tyus and Haines 1991). Transport of larval Colorado pikeminnow from the Yampa River is rapid and nearly complete by mid-September.

Instream construction activities should be avoided between May 15 and September 15, based on communication with B. Petch, CDOW and FWS requirements referenced above. Activity during this time period could physically interfere with migration of adult Colorado pikeminnow and razorback sucker and/or chemically interfere with chemoreceptors that cue fish to spawning sites. Instream activity could also alter spawning areas and increase sedimentation to spawning gravels. Also, instream activities could destroy or disrupt nursery shorelines and backwaters before the fish are large enough to escape to alternate habitats.

The most desirable time for instream construction activity is from January 1 to May 15 because the young fish are sufficiently large to escape physical and chemical disturbances. Furthermore, any instream disturbance and increased sedimentation would be flushed by spring runoff, which usually occurs in these tributaries between May 15 and June 15.

The second best period for construction is September 15 to December 31 because it is a period when the young fish continue to occupy nursery areas but are strong enough to escape most disturbances.

Instream disturbances should be kept to a minimum by avoiding heavy equipment in the stream where possible. Soon after construction begins, bridges will be built across the Little Snake, Yampa and White Rivers. This will entail some equipment in the water for a short period of time, less than 8 hours. Unless the project encounters consolidated rock in the streambed which is highly unlikely based on the UBL, open cut construction for these river crossings will all be

completed in 24 hours or less. Construction baffles should be emplaced from shore and trenches should be excavated from shore when possible. Keeping equipment and machinery out of the stream bed will minimize disturbances and sediment releases as well as minimize instream fuel and oil spills. Accidental spills and intentional releases of fuel, oil, solvents, and cleaners in and around drainages should be avoided. Water used to hydrostatically test the pipeline should be pumped from center channel with swift current and not from shallow shoreline habitats, especially backwaters, to minimize fish entrainment. Effluent from hydrostatic testing should not be discharged into open waters but should be placed in settling ponds and the water allowed to evaporate (Procedure 11, Appendix B). Settled materials should be transported from the area or buried.

Near stream construction should avoid backwaters and jurisdictional wetlands. Backwaters are shallow habitats commonly used as nurseries by young fish, especially Colorado pikeminnow and razorback suckers. They are generally longer than wide with a single opening to the river and they are warmer and more productive than the main river.

These procedures appear to avoid adverse impacts affecting the viability of the pikeminnow, the chub and the sucker to survive.

4.3.2 Humpback Chub

The humpback chub currently lives in canyons with swift currents and white water, which eliminates all proposed crossings from concern with this species. Preferred habitat is far downstream of the Piceance Basin Expansion. Historically, this reach of the Yampa supported large populations of the Colorado pikeminnow and the humpback chub. Today it supports sparse numbers with little, if any, reproduction

4.3.3 Bonytail Chub

The bonytail chub is the most endangered of the Colorado River fishes. Its distribution is limited to the lower reaches of the Yampa River in Dinosaur National Monument. The fish is not a concern for the river crossings by the Piceance Basin Expansion.

4.3.4 Razorback Sucker

The razorback sucker is a known resident of the Yampa River at the crossing site and though a small number are known in the White River, that crossing appears to be of minimal concern. Impacts and mitigation are the same as presented for the pikeminnow.

4.4 Plants

4.4.1 Ute Ladies'-tresses

This orchid occurs in wetland and riparian areas between 1500 and 7000 feet elevation and could occur along the three perennial streams and some of the wetlands and minor streams crossed by the proposed Piceance Basin Expansion in Colorado. Non-blooming plants are similar to hooded ladies-tresses (*Spiranthes romanzoffiana*) and the flower is required for identification. Flowering usually occurs in late July through September, but is sometimes in early July or as late as early October, depending on location and annual weather conditions. The orchid can remain dormant for one or more growing seasons. It "depends on natural disturbance, where early successional

conditions are perpetuated or competition from other vegetation is restricted. The species is found in early-to mid-seral communities, usually in relatively open vegetation with sparse canopy, in full to partial shade" (Letter to Interested Parties, Philip Laumeyer, U.S. Fish and Wildlife Service [FWS], Spokane, WA, June 17, 1998.).

The species can occur in the following settings, based on the above letter:

- Floodplains, and moist to wet meadow on floodplains
- Abandoned meander channels
- Moist to wet meadows irrigated by freshwater springs
- Riparian streambanks, riparian scrub/wet meadow habitat mosaic, riparian forest/riparian scrub/wet meadow habitat mosaic, stream-side habitats dominated by grasses, rushes, and sedges, and willow saplings
- Man-made wetland habitat (borrow pits)
- Upper edges of river banks, terraces, open creek banks in the zone between dry grasslands at the top of the bank and cattail marsh along the stream channel
- Islands
- Point bars, as well as troughs that separate point bars from terraces
- Various topographic positions, up to 200 feet horizontally and 0.5 to 4 feet vertically from water's edge but not on steep slopes
- Rarely, in dense willow thickets and in mature narrow-leaf cottonwood stands that have remnant meanders with moist soils

A field survey for the orchid was conducted in 2004 and no plants were located on any stream crossings or other appropriate habitat.

Impacts

Direct impacts to Ute ladies'-tresses orchid (i.e., destruction, injury or seed displacement) could occur at stream crossings or other appropriate habitat, such as, isolated wetlands, during clearing, trenching, and general vehicle movement along the right-of-way. Once the pipeline is completed and reclaimed, direct impacts during operation could only occur if a pipeline breached at a river crossing. Operational monitoring is usually done by aircraft so no vehicles would be expected on or near Ute ladies'-tresses habitat. Required periodic operational surveys will be conducted on foot in potential habitat.

Indirect impacts to orchid could include invasion of the habitat by weedy plant species, thus increasing competition for water, sunlight, or other resources. Altered soil conditions within the right-of-way may also facilitate colonization of the area by rodents, which could increase

herbivory on the orchid. These impacts are likely to be most apparent immediately following construction and revegetation and would diminish with time.

Cumulative impacts to the plant would be due to increased human recreational use of the pipeline's right-of-way corridor or to similar or other use of the corridor by linear projects, such as fiber optic cables and natural gas or liquid pipelines. Since the right-of-way is both under private ownership and federally administered, human recreation will be limited by the former and will require barriers on federal or state lands.

During late July, 2005, crossing of the rivers and wetlands in Colorado will be checked again for the orchid's presence.

Mitigation

Because no orchids were found on or near the right-of-way, mitigation will likely be unnecessary. Nevertheless, if a population of the orchid is found, it will be mapped to determine if a reroute within the right-of-way (50 feet) will avoid a take. If the plant is in the centerline or working area, a front end loader or backhoe will remove a sod plug and place it in a prearranged location. All plants will be removed from the right-of-way for a 12-hour period (72 hours with rock). All plants will be returned to the right-of-way except as mentioned below.

If the sod plug is made up of silts and sand (i.e., a relatively stable plug) a structure will be built out of silt fence just off the right-of-way to hold the sod plugs while construction of the stream crossing commences in a 12- to 72-hour period (72 hours applies to crossings that require blasting or a rock hammer). The plugs will be watered by the EI or biologist so that the plug retains its needed moisture. A shallow backwater outside the right-of-way may also be used to hold the plugs, and would also require a silt fence structure. Topsoil in the right-of-way will be stored in the usual manner per the FERC guidelines. Once the pipe is lowered in, the ditch backfilled, and topsoil moved back in position, the sod plugs will be placed on or near their original location with the help of the EI/biologist. No piece of equipment will leave the right-of-way to retrieve the plugs. A 10-foot-wide swath of vegetation extending from the water's edge will remain intact (undisturbed) at each crossing except at the ditch line and the adjacent work area.

If the orchid occurs in a gravel bed or sandy substrate, a plug will be removed from the working area and immediately placed in a similar substrate. Due to the instability of the plug, it will not be returned to near its original position, but left in place to assure plant survival. A one-time pass through the area for all equipment will be permitted. Construction will take place in less than 12 hours unless the crossing has a rock base, which will require 72 hours.

If the orchid occurs in the right-of-way but can be left intact during construction, its location will be fenced and marked for avoidance.

The expected status of the Ute ladies'-tresses will not change due to the pipeline's construction and operation. The proposed action is not likely to have an adverse impact on the orchid.

4.4.2 Dudley Bluffs Bladderpod

The Dudley Bluffs bladderpod is a threatened species that is found on the White Tongue portion of the Parachute Creek Member of the Green River Formation. None of these plants were found during a search of the proposed route in the Little Hills area. This was the only location that could have supported this plant. The area will be searched again prior to construction. Should a population be found in the right-of-way, a plan for avoidance or take will be worked out with the FWS prior to construction.

4.4.3 Piceance Twinpod

The Piceance twinpod is a threatened species that is found on the White Tongue portion of the Parachute Creek Member of the Green River Formation. None of these plants were found during a search of the proposed route in the Little Hills area. This was the only location that could have supported this plant. . The area will be searched again prior to construction. Should a population be found in the right-of-way, a plan for avoidance or take will be worked out with the FWS prior to construction.

4.4.4 Debris Milkvetch

Debris milkvetch occurs in pinyon-juniper woodland and mixed desert shrub, often on rocky soils ranging from sandy clays to sandy loams. It also occurs on alluvial terraces with cobbles. It was found at two locations, MPs 125.1 and 125.15 in Rio Blanco County (Table 15). Details of their number are included in the Rare Plant Report, Appendix F.

Impacts

Since both populations of the milkvetch are in the proposed right-of-way, both populations would likely be destroyed.

Mitigation

All other plants found in the right-of-way will be avoided where possible by rerouting around the plants, decreasing the width of the working side and using silt fence or snow fence to protect the plants from inadvertent damage. Where a loss is unavoidable, the plants will be transplanted as near to their origin as possible and if necessary off the right of way with landowner permission. All locations listed in Table 15 will be surveyed prior to construction in 2005 and a plan submitted to the FWS for direction and approval.

4.4.5 Piceance Bladderpod

This bladderpod occurs on the shale outcrops of the Green River Formation on ledges and slopes of canyons in open areas. No plants were found during a rare plant survey along the proposed route in 2004.

Table 15. Rare Plants Locations on the Piceance Basin Expansion, Wyoming and Colorado, 2004

Milepost	Species
125.1	Debris milkvetch *Astragalus detritalis*

125.15	Debris milkvetch *Astragalus detritalis*

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LIST OF APPENDICES

Appendix A: Piceance Basin Expansion Quads

WIC Piceance Basin Expansion - 7.5-minute-series USGS maps:
Wyoming Route Maps No's 1 to 10
Colorado Route Maps No's. 11 to 25

Wamsutter Plot Plan	233A-0001A
Little Snake River Crossing Plan	233A-22A-1
Gate 4 Pigging Facility	233A-0023A
Colorado Trust Lands Plan	233-A-36A
Yampa River Crossing Plan	233A-37A-1
Colorado Trust Lands Plan	233-A-37C
White River Crossing Plan	233A-53A-1
Greasewood Plot Plan	233A-0060A
Hydrostatic Test Plan	233Q-1

Appendix B: Piceance Basin Expansion "Typicals"

Plans: 1, 2A, 2B, 2D, 2E, 4, 5, 8
Procedures: 1, 2, 3, 4, 7, 9, 11
Spill Prevention Plan (from Resource Report 1)

Appendix C: WIC's Wetland and Waterbody Construction and Mitigation Procedures, based on FERC's procedures

Appendix D: Reclamation Plan for the Piceance Basin Expansion

Appendix E: Piceance Basin Expansion Wildlife and Vegetation Maps 1-18

Appendix F: Rare Plant Report for the Piceance Basin Expansion

APPENDIX I

WETLANDS AFFECTED DURING CONSTRUCTION OF THE PICEANCE PROJECT

Piceance Project					
Wetlands Affected During Construction					
Beginning Milepost	Disturbance of Pipeline (P) and/or Additional Temporary Workspace Areas (A)	County	NWI Wetland Classification	Maximum Length of Crossing within ROW (feet)	Area Affected / Construction (acres)[a]
39.07	P	Sweetwater	PEM	202	0.26
41.57	P	Sweetwater	PEM	114	0.19
53.15	P	Moffat	PEM	103	0.18
53.29	P	Moffat	PEM	685	0.97
68.32	P	Moffat	PEM	27	0.04
69.42	P	Moffat	PEM	353	0.6
84.39	-	Moffat	PEM	0[b]	0[b]
87.63	P,A	Moffat	PSS/PEM	62	0.09
87.68	P,A	Moffat	PEM	1,171[c]	4.44[c]
87.92	P	Moffat	PSS/PEM	40	0.06
97.23	P	Moffat	PEM	51	0.03
97.44	P	Moffat	PEM	27	0.02
98.49	P	Moffat	PEM	15	0.02
99.32	P	Moffat	PSS	16	0.02
99.75	P	Moffat	PEM	46	0.05
100.73	-	Moffat	PEM	0[b]	0[b]
106.03	P	Moffat	PEM	130	0.12
106.17	P	Moffat	PEM	230	0.27
106.58	P	Moffat	PEM	584	0.72
107.18	P	Moffat	PEM	85	0.09
107.75	P	Moffat	PEM	73	0.05
111.17	P	Rio Blanco	PEM	18	0.02
114.67	P	Rio Blanco	PEM	50	0.07
116.45	-	Rio Blanco	PEM	0[b]	0[b]
127.46	-	Rio Blanco	PEM	0[b]	0[b]
127.59	P	Rio Blanco	PEM	71	0.09
127.63	-	Rio Blanco	PEM	0	0
127.65	P,A	Rio Blanco	PEM	364[c]	0.32[c]
132.95	P	Rio Blanco	PEM	15	0.02
133.71	P	Rio Blanco	PEM	6	0.01

[a] Based on field delineations within proposed ROW.

[b] Wetland ≥125 feet from centerline. Construction location will be adjusted to avoid disturbance in wetland.

[c] Located on agricultural land.

APPENDIX J

SPECIAL STATUS SPECIES IDENTIFIED FOR THE PICEANCE PROJECT

Special Status Species Identified for the Piceance Project[1]

Common Name	Scientific Name	Status[2]	Habitat Association	Potential for Occurrence Within the Project Area[3]	Eliminated From Detailed Analysis	References
MAMMALS						
Townsend's big-eared bat	*Plecotus townsendii*	BLM-WY; BLM-CO	This species inhabits dry coniferous forests, juniper woodlands, deciduous forests, basins, desert shrublands, and grasslands. Roost sites typically include caves and abandoned mines, but rock outcrops and buildings also will be used.	Low. No historic roost sites have been documented along the project route.	No.	Fitzgerald et al. 1994; WGFD 1996, 2004; WYNDD 2003.
Fringed myotis	*Myotis thysanodes*	BLM-WY; BLM-CO	This species primarily inhabits coniferous forests, woodland-chaparral, and basin-prairie shrublands, but have been documented in spruce-fir habitats. Roost sites include caves, abandoned mines, rock crevices, and buildings.	Low. This specie could occur within suitable habitats in Colorado and Wyoming. No historic roost sites have been documented along the project route.	No.	Fitzgerald et al. 1994; WGFD 1996, 2004; WYNDD 2003.
Yuma myotis	*Myotis yumanensis*	BLM-CO	This species inhabits Basin-prairie shrublands, riparian shrub, grassland, barren areas, cliffs, and rock outcrops. Roosts primarily in human-built structures (building and bridges), and occasionally in mines and caves.	Low. This species could occur within suitable habitats in Colorado and Wyoming. No historic roost sites have been documented along the project route.	No.	Fitzgerald et al. 1994; WGFD 1996, 2004; WYNDD 2003.
Swift fox	*Vulpes velox*	BLM-WY	This species is found in short-, mid-, and mixed-grass prairies with gently rolling hills within eastern Colorado and Wyoming. Den sites are	None. No observations of this species have been documented within the project vicinity.	Yes. The closest known occurrence is greater than 10 miles to the east of the proposed pipeline in Carbon	Fitzgerald et al. 1994; WGFD 1996, 2004; WYNDD 2003.

(Continued)

Common Name	Scientific Name	Status[2]	Habitat Association	Potential for Occurrence Within the Project Area[3]	Eliminated From Detailed Analysis	References
			typically located on flat areas or along slopes or ridges that provide a good view. Young are born in late March, April, or early May.		County, Wyoming.	
Wyoming pocket gopher	*Thomomys clusius (Thomomys talpoides)*	BLM-WY	This species is known to occur in upland drier ridge tops (gravelly loose soils) in greasewood habitat. Nests in a maternal burrow, and usually feeds underground in a shallow tunnel, pulling roots and plants underground.	Low. The known range of this species is limited to the southeastern corner of Sweetwater County.	No. Potentially suitable habitat for this species could occur along the northern portion of the project route.	WGFD 2004.
Black-footed ferret	*Mustela nigripes*	FE; CO-E; WY-S	Suitable habitat consists of black-tailed prairie dog colonies or complexes (80 acres or greater) or White-tailed prairie dog colonies or complexes (200 acres or greater). Most litters are born in May and emerge from their nursery dens in July.	Low. FWS has block-cleared all prairie dog towns in the Colorado portion of the proposed project area. Thus, no ferret surveys are necessary in Colorado. Surveys in Wyoming may be required.	No. Potentially suitable habitat for this species could occur within prairie dog colonies of suitable size and density between MP 0.0 and MP 51.0.	USFWS 1989.
White-tailed prairie dog	*Cynomys leucurus*	BLM-WY BLM-CO[4]	This species occupies basin-prairie and mountain-foothill shrublands, sagebrush-grasslands, barren and overgrazed areas, and agricultural areas.	High. A total of 6 active white-tailed prairie dog colonies were identified along the project ROW.	No. Six small to medium colonies would be crossed at approximate MPs 0.0, 13.4, 21.3, 30.0, 54.0, and 94.0	69 FR 64889; WGFD 2004; Fitzgerald et al. 1994.

(Continued)

Common Name	Scientific Name	Status[2]	Habitat Association	Potential for Occurrence Within the Project Area[3]	Eliminated From Detailed Analysis	References
BIRDS						
Northern goshawk	*Accipiter gentilis*	BLM-WY; BLM-CO	This species occupies mature, closed-canopied coniferous and aspen forests habitats. This species nests in open older-aged class coniferous forests and aspen stands.	Moderate. The BLM has indicated that there are two potential sites within the southern portion of the project route.	No. Potentially suitable habitat is scattered between MP 129.5 and MP 141.7. This species is discussed in Section 3.5.2, Migratory Birds	Kingery 1998; WGFD 1996, 2004.
Golden eagle	*Aquila chrysaetos*	BLM-CO	This species occurs in a variety of habitats including grassland, pinyon juniper woodland, coniferous and deciduous forests, shrubland, and rock outcrop. Nest sites are usually located on cliffs and occasionally in large trees in open habitats.	High. This species could occur within suitable habitats along the project route.	No. A total of two active nests have been identified within 1 mile of the project ROW at approximate MP 13.0 and MP 71.0. This species is discussed in Section 3.5.2, Migratory Birds	Kingery 1998; WGFD 2004.
Ferruginous hawk	*Buteo regalis*	BLM-WY; BLM-CO	This species occurs in open semi-arid habitats including basin-prairie shrubland, mountain-foothills, badlands, and grassland. Nest sites include trees, ledges, and rock outcrops in sagebrush valleys and rolling grassland habitat.	Moderate. This species could occur within suitable habitats along the project route, although no nests have been documented within 0.5 mile of the project ROW.	No. This species is discussed in Section 3.5.2, Migratory Birds	Kingery 1998; WGFD 1996, 2004.

(Continued)

Common Name	Scientific Name	Status[2]	Habitat Association	Potential for Occurrence Within the Project Area[3]	Eliminated From Detailed Analysis	References
Swainson's hawk	*Buteo swainsoni*	BLM-CO	This species typically occurs in arid and semi-arid grassland habitats and in agricultural areas with scattered trees and shrubs. Nest sites typically occur in isolated trees, but will sometimes nest on cliffs or rock outcrops.	Moderate. This species could occur within suitable habitats along the project route.	No. This species is discussed in Section 3.5.2, Migratory Birds	Kingery 1998; WGFD 2004.
Bald eagle	*Haliaeetus leucocephalus*	FT[5]; CO-T; WY-T	This species typically occurs near large bodies of water that support suitable roosting and foraging habitat. Nests are commonly built in mature cottonwoods or conifers along lakes or other large bodies of water.	High. This species could occur within suitable habitats along the project route.	No. Two nest sites and winter roost areas have been identified in the vicinity of the project ROW.	Kingery 1998; WGFD 1996, 2004.
American peregrine falcon	*Falco peregrinus*	BLM-WY	This species typically breeds in foothills and mountainous areas. Nest sites are often located on ledges of high, steep-walled cliffs. Preferred foraging habitat includes marshes, lakes, rivers, and wet meadows.	Low. No falcon nest sites have been identified as occurring within the vicinity of the project route.	No. This species is discussed in Section 3.5.2, Migratory Birds	Kingery 1998; WGFD 2004.

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Common Name	Scientific Name	Status[2]	Habitat Association	Potential for Occurrence Within the Project Area[3]	Eliminated From Detailed Analysis	References
Greater sage-grouse	*Centrocercus urophasianus*	BLM-WY; BLM-CO[4]	The sage grouse is a sagebrush obligate species. Lek sites are generally located in open areas such as broad ridges, grassy areas, and disturbed sites, adjacent to suitable nesting habitat. Nesting occurs within sagebrush stands with adequate height and canopy cover, and food source.	High. This species could occur within suitable habitats along the project route. Occurrence by this species has been documented within the project vicinity in Wyoming and Colorado. A total of 23 historic lek sites have been identified as occurring within 2 miles of the project ROW.	No. Potentially suitable breeding habitat for this species is scattered along the project route. A total of 10 active lek sites were identified within 2 miles of the project ROW during the 2004 surveys.	Connelly et al. 2004; Kingery 1998; WGFD 2004.
Mountain plover	*Charadrius montanus*	BLM-WY; BLM-CO	This species inhabits flat, short-grass prairie in areas often grazed by livestock and in areas occupied by prairie dog colonies.	High. This species could occur within suitable habitats along the northern portion of the project route.	No. Potentially suitable habitat for this species is scattered throughout the following areas: MP 0.0 to MP 24.0, MP 29.8 to MP 30.1, MP 54.0, MP 93.5 to 94.1, and MP 111.3. One active nest was documented at MP 15.1 during the 2004 surveys.	Kingery 1998; WGFD 1996, 2004.

(Continued)

Common Name	Scientific Name	Status[2]	Habitat Association	Potential for Occurrence Within the Project Area[3]	Eliminated From Detailed Analysis	References
Yellow-billed cuckoo	*Coccyzus americanus*	FC; BLM-WY; BLM-CO; WY-S	This species inhabits lowland deciduous woodlands, willow and alder thickets, mature cottonwood-riparian woodlands, deserted farmlands, and orchards. Breeding typically occurs in riparian woodlands.	None. No observations of this species have been documented within the project vicinity.	Yes. The dense riparian habitat necessary to support yellow-billed cuckoos is not present in the project area.	Kingery 1998; WGFD 1996, 2004; WYNDD 2003.
Western burrowing owl	*Athene cunicularia hypugea*	BLM-WY; CO-T	This species nest in non-riparian habitats including abandoned burrows of prairie dogs, ground squirrels, foxes, and badgers in grassland, open shrubland, and woodland communities.	High. This subspecies could nest within potentially suitable habitat along the project route.	No. One active nest was identified at MP 54.0 during the 2004 survey.	Kingery 1998; WGFD 2004; WYNDD 2003.
Sage thrasher	*Oreoscoptes montanus*	BLM-WY	This species inhabits basin-prairie and mountain-foothills shrubland, and nesting occurs in or beneath sagebrush shrubs.	Low. This species is a summer resident in Sweetwater County. No sage thrashers were seen during the 2004 surveys.	No. This species is discussed in Section 3.5.2, Migratory Birds.	WGFD 2004.
Sage sparrow	*Amphispiza belli*	BLM-WY	This species inhabits basin-prairie and mountain-foothills shrubland, and nesting occurs in or beneath sagebrush shrubs.	Low. This species is an uncommon summer resident in Sweetwater County and local summer resident in western Colorado. No sage sparrows were seen during the 2004 surveys.	No. This species is discussed in Section 3.5.2, Migratory Birds.	WGFD 2004.

(Continued)

Common Name	Scientific Name	Status[2]	Habitat Association	Potential for Occurrence Within the Project Area[3]	Eliminated From Detailed Analysis	References
Brewer's sparrow	*Spizella breweri*	BLM-WY	This species typically occurs in basin-prairie and mountain-foothills shrublands, especially sagebrush and woodland chaparral. Nest sites typically occur in shrubs.	Low. This species is a common summer resident in Sweetwater, Moffat, and Rio Blanco Counties. This species was not observed during 2004 surveys.	No. This species is discussed in Section 3.5.2, Migratory Birds.	WGFD 2004.
Loggerhead shrike	*Lanius ludovicianus*	BLM-WY	This species typically inhabits open riparian areas, agricultural areas, grasslands, and shrublands (especially semidesert shrublands). Nest sites usually occur in isolated trees or large shrubs.	Moderate. This species could nest within suitable habitat along the project route between MP 0.0 and MP 56.0, although none were observed during the 2004 survey.	No. This species is discussed in Section 3.5.2, Migratory Birds.	Kingery 1998; WGFD 2004.
AMPHIBIANS						
Great Basin spadefoot toad	*Spea intermontana*	BLM-WY; BLM-CO	This species inhabits pinon-juniper woodlands, sagebrush, and semi-desert shrubland. This species uses both permanent and temporary water sources for breeding. Breeding occurs in May through July.	Low. This species could occur within suitable habitats along the project route. This species has been observed in western Colorado and in Sweetwater County, Wyoming.	No.	Baxter and Stone 1980; Hammerson 1999; WGFD 2004; WYNDD 2003.

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Common Name	Scientific Name	Status[2]	Habitat Association	Potential for Occurrence Within the Project Area[3]	Eliminated From Detailed Analysis	References
Northern leopard frog	*Rana pipiens*	BLM-WY; BLM-CO	This species inhabits marshes, ponds, beaver ponds, lakes, reservoirs, streams, and irrigation ditches. Breeding occurs in March through mid-September.	Low. This species occurs in areas with permanent water, which is scarce along the project route.	No.	Baxter and Stone 1980; WGFD 2004; WYNDD 2003.
REPTILES						
Midget faded rattlesnake	*Crotalus viridis concolor*	BLM-CO	This species inhabits rock outcrops in the sagebrush communities.	Low. This species could occur within suitable habitats along the project route in Sweetwater County, Wyoming.	No.	Baxter and Stone 1980; WGFD 2004; WYNDD 2003.
FISHES						
Bonytail	*Gilia elegans*	FE	This rare species occurs in larger river channels of Green, Colorado, Yampa, and Gilia Rivers in Colorado River drainage. This species primarily occupies pools and eddies rather than areas with swift current. Spawning typically occurs in June and July when water temperatures are approximately 64°F.	Low. No known populations occur in Colorado. The last occurrence by this species in the Yampa River was recorded at the confluence of the Green River in 1979.	No. Although it is highly unlikely that this species would occur along the project route, potential water depletions from the Colorado River Drainage could impact suitable habitat.	Lee et al. 1980; USFWS 1990, 1993; Woodling 1985.

(Continued)

Common Name	Scientific Name	Status[2]	Habitat Association	Potential for Occurrence Within the Project Area[3]	Eliminated From Detailed Analysis	References
Bluehead sucker	*Catostomus discobolus*	BLM-WY; BLM-CO	This species is found in a variety of fluvial habitats, ranging from cold, clear trout streams to warm, turbid streams, with moderate-to-fast velocity. This species prefers areas with riffles over a rocky substrate. Spawning occurs in late spring or early summer at water temperatures of at least 61°F.	Low. This species is known to occur in riverine habitats on the western slope of Colorado including the Yampa and Little Snake Rivers.	No.	Baxter and Simon 1970; Lee et al. 1980; Woodling 1985.
Colorado pikeminnow	*Ptychocheilus lucius*	FE; CO-T	This species occurs in big, deep-water riverine habitats at a variety of depths and velocities over silt, sand, gravel, and boulder substrates. Spawning occurs in run, eddy, and pool habitats from June through August at water temperatures ranging from 71° to 77°F. Young fish primarily inhabit shallow, backwater areas over silt and sand bottoms.	Low. The project would intersect critical habitat for this species at the Yampa River crossing. Potential water depletions from the Colorado River Drainage also could impact suitable habitat.	No.	59 FR 13374; USFWS 1993; Woodling 1985.

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Common Name	Scientific Name	Status[2]	Habitat Association	Potential for Occurrence Within the Project Area[3]	Eliminated From Detailed Analysis	References
Flannelmouth sucker	*Catostomus latipinnis*	BLM-WY; BLM-CO	This species inhabits large streams and rivers in all habitat types including riffles, runs, pools, eddies, and backwaters. This species also enters mouths of small tributary streams. Spawning occurs in spring and early summer on riffles with coarse gravel bottoms at water temperatures near 55°F.	Low. This species could potentially occur at or near the crossing of the White River and Yampa River.	No.	USFWS 1993; Woodling 1985.
Humpback chub	*Gilia cypha*	FE	This species occupies a variety of riverine habitats including in deep water pools riffles and eddies over silt, sand, boulder, and bedrock substrate. Spawning typically occur after the highest spring flows when water temperatures approach 68°F. Young fish utilize shallow areas in backwaters, eddies, and runs.	Low. The closest known population occurs more than 40 miles west of the Yampa River crossing at the confluence of the Yampa and Green Rivers.	No. Although it is highly unlikely that this species would occur along the project route, potential water depletions from the Colorado River Drainage could impact suitable habitat.	Lee et al. 1980; USFWS 1993; Woodling 1985.
Roundtail chub	*Gila robusta*	BLM-CO; BLM-WY	This species inhabits pools, eddies, runs, and ruffles in moderate to large rivers. Spawns in spring and early summer.	Moderate. This species could potentially occur at the White and Yampa River crossings.	No.	Karp and Tyus 1990; Woodling 1985.

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Common Name	Scientific Name	Status[2]	Habitat Association	Potential for Occurrence Within the Project Area[3]	Eliminated From Detailed Analysis	References
Mountain sucker	*Catostomus platyrhynchus*	BLM-CO	This species is found in smaller rivers and streams with gravel, sand, and mud substrates. It typically occupies undercut banks, eddies, small pools, and areas of moderate current. Spawning occurs in late spring and early summer.	Moderate. This species could potentially occur at river and stream crossing within the project area in Colorado and Wyoming.	No.	Baxter and Simon 1970; Lee et al. 1980; Woodling 1985.
Razorback sucker	*Xyrauchen texanus*	FE; CO-E	This species is found in backwaters, eddies, pools, and flat-water areas in the main channel. Sand or silt substrates with low water velocity are preferred. Spawning occurs over mixed substrate in the spring with rising water levels and increasing temperatures ranging from 48° to 63°F. Young fish utilize quiet, shallow backwaters and river margins.	None. The closest known population occurs more than 40 miles west of the Yampa River crossing at the confluence of the Yampa and Green Rivers.	No. Although it is highly unlikely that this species would occur along the project route, potential water depletions from the Colorado River Drainage could impact suitable habitat.	USFWS 1993; Woodling 1985.
PLANTS						
Debris milkvetch	*Astragalus detritalis*	BLM-CO	This species is found on rocky or sandy soils on alluvial terraces with cobbles in pinyon-juniper and mixed desert shrub communities. Flowering period: Late April-early June. Elevation: 5,400-7,200 feet.	High. A total of eight individual plants of this species were observed at two locations along the project route.	No. This species occurs within suitable habitat near MP 125.	Spackman et al. 1997; Smith 2004.

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Common Name	Scientific Name	Status[2]	Habitat Association	Potential for Occurrence Within the Project Area[3]	Eliminated From Detailed Analysis	References
Nelson milkvetch	*Astragalus nelsonianus*	BLM-WY; BLM-CO	This species is found in gullies and flats on seleniferous soils in sparsely vegetated sagebrush. Flowering period: late May-August. Elevation: 6,000-7,000 feet.	Low. This species could occur along the project route in Sweetwater County, Wyoming.	No. This species could occur within potentially suitable habitat from MP - 0.0 to MP 52.0 and from MP 104.5 to MP 141.7.	Spackman et al. 1997.
Park rockcress	*Boechera fernaldiana*	BLM-CO	This species occurs on limestone and sandstone outcrops (usually Weber sandstone) in mixed desert shrub and pinyon-juniper communities, often in pine duff in shade.	None. No observations of this species have been documented within the project vicinity.	Yes. This species occurs outside of the project area in the extreme western portion of Moffat County, Colorado.	Spackman et al. 1997.
Ephedra buckwheat	*Eriogonum ephredoides*	BLM-CO	This species occurs on sparsely vegetated slopes on white shales of the Green River Formation and soils derived from them.	None. No observations of this species have been documented within the project vicinity.	Yes. This species occurs outside of the project area in the extreme western portion of Rio Blanco County, Colorado.	Spackman and Anderson 2002.
Utah genetian	*Gentianella tortuosa*	BLM-CO	This species occurs on barren shale knolls and slopes of the Green River Formation. Flowering period: July-August. Elevation: 8,500-10,800 feet.	None. No observations of this species have been documented within the project vicinity.	Yes. This species does not occur within the elevational range of this species in Rio Blanco County, Colorado.	Spackman et al. 1997.

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Common Name	Scientific Name	Status[2]	Habitat Association	Potential for Occurrence Within the Project Area[3]	Eliminated From Detailed Analysis	References
Narrow-stem gilia	*Gilia stenothyrsa*	BLM-CO	This species occurs in grassland, sagebrush, mountain-mahogany, or pinyon-juniper communities on silty to gravelly loam soils derived from the Green River and Uinta formations. Flowering period: Late May-June. Elevation: 5,000-6,000 feet.	Low. This species could occur within potentially suitable habitat along the project route in Rio Blanco County, Colorado.	No. This species could occur within potentially suitable habitat from MP 103 to MP 141.7.	Spackman et al. 1997.
Dudley Bluffs bladderpod	*Lesquerella congesta*	FT	This species inhabits barren white shale outcrops of the Green River and Uinta formations exposed along drainages through erosion from the downcutting of streams in the Piceance Basin. Flowering period: April-May. Elevation: 6,000-6,700 feet.	Low. This species could occur within potentially suitable habitat along the project route in Rio Blanco County, Colorado.	No. Potentially suitable habitat for this species could occur between MP 128 and MP 141.7.	Spackman et al. 1997.
Piceance bladderpod	*Lesquerella parviflora*	BLM-CO	This species occupies shale outcrops of the Green River Formation, on ledges and slopes of canyons in open area. Flowering period: June-early July. Elevation: 6,200-8,600 feet.	Low. This species could occur within potentially suitable habitat along the project route in Rio Blanco County, Colorado.	No. This species could occur within potentially suitable habitat from MP 103 to MP 141.7.	Spackman et al. 1997.

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Common Name	Scientific Name	Status[2]	Habitat Association	Potential for Occurrence Within the Project Area[3]	Eliminated From Detailed Analysis	References
Narrow-leaf evening primrose	*Oenothera acutissima*	BLM-CO	This species is found in sandy, gravelly or rocky soils, in seasonally wet areas; in meadows, depressions, or along arroyos in habitats ranging from mixed conifer forest to sagebrush scrub.	None. No observations of this species have been documented within the project vicinity.	Yes. This species occurs outside of the project area in western Moffat County, Colorado.	Spackman et al. 1997.
Rollins cryptanth	*Oreocarya rollinsii*	BLM-CO	This species occurs on white shale slopes of the Green River Formation in pinyon-juniper or cold desert shrubland communities.	None. No observations of this species have been documented within the project vicinity.	Yes. This species occurs outside of the project area in western Moffat County, Colorado.	Spackman et al. 1997.
Gibben's beardtongue	*Penstemon gibbensii*	BLM-WY; BLM-CO	This species is found in sparsely vegetated shale or sandy-clay slopes of the Brown's Park Formation. Associated vegetation includes pinyon-juniper woodland, sagebrush, or salt desert shrub communities. Flowering period: June-September. Elevation: 5,500-7,700 feet.	High. This species could occur within potentially suitable habitat along the project route in Sweetwater County, Wyoming.	No. This species could occur within potentially suitable habitat from MP 0.0 to MP 52 and from MP 103 to MP 141.7. This species was identified in the project vicinity during the 2004 field surveys.	Fertig 1994; Spackman et al. 1997.

(Continued)

Common Name	Scientific Name	Status[2]	Habitat Association	Potential for Occurrence Within the Project Area[3]	Eliminated From Detailed Analysis	References
Dudley Bluffs twinpod (a.k.a. Piceance twinpod)	*Physaria obcordata*	FT	This species is found on barren white outcrops and steep slopes exposed by creek downcutting. It is restricted to the Parachute Creek Member of the Green River Formation. Flowering period: May-June. Elevation: 5,900-7,500 feet.	High. This species could occur within potentially suitable habitat along the project route in Rio Blanco County, Colorado.	No. Suitable habitat for this species occurs between MP 128 and MP 141.7. This species was identified in the general project vicinity during the 2004 field surveys (although not along the proposed ROW).	Spackman et al. 1997.
Western prairie-fringed orchid	*Platanthera praeclara*	FT	This orchid occurs most often in mesic to wet unplowed tallgrass prairies and meadows but have been found in old fields and roadside ditches.	None. This species would not occur along the project route.	Yes. This species is not expected within the project vicinity based on known occurrence and range.	Bjugstad and Bjugstad 1989.
Ute ladies'-tresses	*Spiranthes diluvialis*	FT	This species is found in sub-irrigated alluvial soils along streams, and in open meadows in flood plains. Flowering period: July-September. Elevation: 4,500-6,800 feet.	Low. This species was not observed during the 2004 field surveys. The closest known occurrence is approximately 50 miles west of the project route.	Yes. This species is not expected within the project vicinity based on known occurrence and range.	Fertig 1994; Spackman et al. 1997.

[1] Species identified in this table include state and federally listed species and BLM sensitive species only.

[2] Status:

FE = Federally listed as endangered.
FT = Federally listed as threatened.
FC = Federal candidate.
CO-E = State-listed as endangered in Colorado.
CO-T = State-listed as threatened in Colorado.
WY-T = State-listed as threatened in Wyoming.
WY-S = Wyoming sensitive.
BLM-WY = Wyoming BLM sensitive.
BLM-CO = Colorado BLM sensitive.

[3] Potential for occurrence is based on range for the species, and not season.

[4] The FWS determined that further consideration for listing this species is not warranted.

[5] Proposed to be de-listed.

LIST OF PREPARERS AND REVIEWERS

LIST OF PREPARERS AND REVIEWERS

The EIS was prepared by ENSR, a third-party contractor, under the direction of the FERC Staff. Representatives from the BLM also contributed to and participated in the preparation of this document and the NEPA review process. The following presents the names of individuals who prepared and/or reviewed the EIS and their area or areas of responsibility.

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GLOSSARY

GLOSSARY

alluvial material composed of riverbed or delta material.

ancillary facilities facilities associated with the pipeline system, including compressor stations, valves, and metering stations.

aquifer a layer of underground sand, gravel, or porous rock in which water collects; a source of groundwater.

cathodic protection a method to reduce external corrosion by placing a small electrical charge on the steel pipe.

corrosion an electrochemical process that occurs when steel is exposed to an electrolyte, such as soil or water. Corrosion can occur along the internal or external surfaces of the pipe. External corrosion is reduced by cathodic protection and pipeline coatings. Corrosion is monitored by internal inspection tools (internal and external corrosion) and corrosion coupons (internal corrosion).

depth of cover in new construction areas, the burial depth typically would be 30 to 36 inches from the top of the pipe to the natural grade. No depth of cover is specified for existing pipe under OPS regulations.

easement a legal instrument, usually negotiated with the landowner, that is used to convey a ROW to the pipeline company. The easement gives the pipeline company the right to operate and maintain its pipeline in the permanent ROW and, in return, compensates the landowner for the use of the land.

eminent domain the right of the government to take private property for public use after providing just compensation by virtue of the sovereign power over all lands within its jurisdiction.

fugitive dust a non-point source of air pollution, such as from unpaved roads, agricultural croplands, and construction sites.

high consequence areas (HCAs) OPS-defined areas subject to the Integrity Management Rule. HCAs include high-density population areas, waters where commercial navigation occurs, and areas that are unusually sensitive to environmental damage.

horizontal directional drilling technology used for vertical drilling has been modified for the horizontal installation of pipelines beneath major obstacles, such as rivers, railroads, and highways.

hydrostatic testing pressure testing of a pipeline to test its structural integrity. Typically the line is tested to at least 125 percent of the MAOP and the pressure is held for 8 hours. Hydrostatic testing is a destructive test to evaluate the integrity of the pipe. A pipe that passes this test is considered safe to operate at pressures less than or equal to the MAOP.

Integrity Management Rule as defined in 49 CFR 192, this OPS rule increases requirements for inspection, enhanced damage protection, improved emergency response, and other measures to prevent and mitigate pipeline leaks in HCAs.

internal inspection tool a "smart pig"; tools that assess the pipeline's integrity. At this time, there are three primary types of internal inspection tools: caliper pigs, magnetic leak flux pigs, and ultrasonic pigs.

L_{dn} Day-night (average sound) level.

liquefaction The process by which water-saturated sediments lose strength and may fail during strong earthquake induced ground shaking. Liquefaction can result in the loss of ground bearing capacity or lateral spreading, both of which could potentially damage pipelines and ancillary facilities. Soil liquefaction hazards are associated with unconsolidated alluvial soils with a high water table.

Maximum Allowable Operating Pressure (MAOP) a rating indicating the maximum pressure at which a pipeline or segment of a pipeline may be operated under the DOT regulations in normal conditions.

metering stations	devices that measure the amount of natural gas transported and delivered.
pig	a plug designed to be pushed along the inside of a pipeline. Pigs can be used to clean or inspect the pipeline's surface.
pig launcher/receiver	a short section of pipe controlled by valves that interconnect with the main pipeline to launch and receive cleaning and inspection tools ("pigs") that travel inside the pipeline (also referred to as a pigging facility or pig trap).
right-of-way (ROW)	a legal right of passage over another's property. Typically, the ROW would consist of a 50-foot-wide permanent ROW and, during construction, an additional 35-foot construction ROW.
ROW grant	as defined in 43 CFR 288. A document authorizing a non-possessory, non-exclusive right to use specified federal lands for the limited purpose of construction, operation, purpose of construction, operation, maintenance, and termination of a pipeline. Typically, the grant includes agency stipulations, conditions imposed on the project as a result of the NEPA review, a complete POD, and approvals from other federal agencies.
SCADA	Supervisory Control and Data Acquisition; computerized system that monitors and analyses the pressure within the pipeline every 3 to 5 seconds, notifying operators of any operating abnormalities.
seasonal constraints	time periods when construction may be restricted, such as constraint periods associated with breeding birds.
well head protection areas	areas where land uses are managed to protect and maintain the quality of groundwater.

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